

Eurasian Studies in Business and Economics 14/2
Series Editors: Mehmet Huseyin Bilgin · Hakan Danis

Mehmet Huseyin Bilgin
Hakan Danis
Ender Demir *Editors*

Eurasian Business Perspectives

Proceedings of the 26th and
27th Eurasia Business and Economics
Society Conferences



 Springer

Eurasian Studies in Business and Economics 14/2

Series Editors

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Editors

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Business and Economics Society Conferences

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Preface

This is Volume 2—Eurasian Business Perspectives—of the 14th issue of the Springer’s series *Eurasian Studies in Business and Economics*, which is the official book series of the Eurasia Business and Economics Society (EBES, www.ebesweb.org). This issue includes selected papers from two EBES conferences, namely *26th EBES Conference—Prague* and *27th EBES Conference—Bali*. In the 26th EBES Conference, 238 papers by 439 colleagues were presented, and in the 27th EBES Conference, 106 papers by 208 colleagues were presented. Both theoretical and empirical papers in this volume cover diverse areas of business, economics, and finance from many different regions. Therefore, it provides a great opportunity for colleagues, professionals, and students to catch up with the most recent studies in different fields and empirical findings on many countries and regions.

Roman Mentlik from the University of Finance and Administration, Czech Republic, joined the 26th EBES Conference and *Euston Quah* from Nanyang Technological University, Singapore, and *Marco Vivarelli* from Università Cattolica del Sacro Cuore in Milano, Italy, joined the 27th EBES Conference as keynote speakers. During those two conferences, participants had many productive discussions and exchanges that contributed to the success of the conference where 344 papers were presented in total. In addition to publication opportunities in EBES journals (*Eurasian Business Review* and *Eurasian Economic Review*, which are also published by Springer), conference participants were given the opportunity to submit their full papers for this issue. Theoretical and empirical papers in the series cover diverse areas of business, economics, and finance from many different countries, providing a valuable opportunity for researchers, professionals, and students to catch up with the most recent studies in a diverse set of fields across many countries and regions.

The aim of the EBES conferences is to bring together scientists from business, finance, and economics fields, attract original research papers, and provide them with publication opportunities. Each issue of *the Eurasian Studies in Business and Economics* covers a wide variety of topics from business and economics and provides empirical results from many different countries and regions that are less

investigated in the existing literature. All accepted papers for the issue went through a peer review process and benefited from the comments made during the conference as well. The current issue covers fields such as human resources, management, marketing, and small and medium-sized enterprises/entrepreneurship.

Although the papers in this issue may provide empirical results for a specific county or regions, we believe that the readers would have an opportunity to catch up with the most recent studies in a diverse set of fields across many countries and regions and empirical support for the existing literature. In addition, the findings from these papers could be valid for similar economies or regions.

On behalf of the series editors, volume editors, and EBES officers, I would like to thank all presenters, participants, board members, and the keynote speakers, and we are looking forward to seeing you at the upcoming EBES conferences.

Best regards,

Istanbul, Turkey

Ender Demir

Eurasia Business and Economics Society (EBES)

EBES is a scholarly association for scholars involved in the practice and study of economics, finance, and business worldwide. EBES was founded in 2008 with the purpose of not only promoting academic research in the field of business and economics but also encouraging the intellectual development of scholars. In spite of the term “Eurasia,” the scope should be understood in its broadest terms as having a global emphasis.

EBES aims to bring worldwide researchers and professionals together through organizing conferences and publishing academic journals and increase economics, finance, and business knowledge through academic discussions. Any scholar or professional interested in economics, finance, and business is welcome to attend EBES conferences. Since our first conference in 2009, around *12,011* colleagues from *99* countries have joined our conferences and *6858* academic papers have been presented. **EBES has reached 2,257 members from 87 countries.**

Since 2011, EBES has been publishing two journals. One of those journals, *Eurasian Business Review (EABR)*, is in the fields of industrial organization, innovation, and management science, and the other one, *Eurasian Economic Review (EAER)*, is in the fields of applied macroeconomics and finance. Both journals are published quarterly by *Springer* and indexed in *Scopus*. In addition, EAER is indexed in the *Emerging Sources Citation Index (Clarivate Analytics)*, and EABR is indexed in the *Social Science Citation Index (SSCI)* with an impact factor of *2.143* as of 2018.

Furthermore, since 2014 Springer has started to publish a new conference proceedings series (**Eurasian Studies in Business and Economics**) which includes selected papers from the EBES conferences. The 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, and 24th EBES Conference Proceedings have already been accepted for inclusion in the *Conference Proceedings Citation Index—Social Science & Humanities (CPCI-SSH)*. Subsequent conference proceedings are in progress.

We look forward to seeing you at our forthcoming conferences. We very much welcome your comments and suggestions in order to improve our future events. Our success is only possible with your valuable feedback and support!

With my very best wishes,

Klaus F. Zimmermann
President

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Part I
Human Resources Management

The Workplace Learning Strategies Among Adult Gen Y



Fadilah Puteh, Ahmad Naqiyuddin Sanusi Bakar, Suseela Devi Chandran, and Azizan Zainuddin

Abstract This chapter intends to explore the learning and development needs of Generation Y (Gen Y) as adult learners at the workplace. Gen Y is the current and dominant cohort of workforce. Managing Gen Y effectively and efficiently has puzzled many organizations. Gen Y workforce poses great challenges as their characteristics are extremely distinct than the other two cohorts of workforce, namely Gen X and Baby Boomers. Due to their unique characteristics, hypothetically, managing Gen Y talents should not be the same as managing the other two cohorts. As adult learners at the workplace, it is hypothesized that the adult learning approach or andragogy is applicable and more suitable to be employed. Nonetheless, literature review indicates that organizations employ the traditional approach or pedagogy in determining Gen Y learning and development needs.

Keywords Workplace learning · Adult learners · Learning strategies · Gen Y

1 Introduction

The 11th Malaysian Plan (2016–2020) underlined human capital development as a critical enabler for driving and sustaining economic growth. Malaysia is aiming high to accelerate its human capital development for an advanced nation by the year 2020, but is confronted with the challenge of developing high-quality human capital. One of the national agendas on human capital development is to strengthen lifelong learning for skills enhancement. Organization roles in lifelong learning include initiatives to provide meaningful workplace learning for their talents.

The current workplace in Malaysia consists of three different cohorts, namely Baby Boomers, Generation X, and Generation Y (Lamm and Meeks 2009). Baby

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Boomers are categorized into the group of people who were born around 1946 until 1964 (Schullery 2013; Cekada 2012; Fadilah et al. 2015). Meanwhile, Generation X or called the Lost Generation are born between 1966 and 1976 (Wan Yusoff et al. 2013; Fadilah et al. 2015). Generation Y, on the other hand, are those who were born between 1980 and 2000 (Hess and Jepsen 2009; Schroer 2008; Tay 2011; Wan Yusoff et al. 2013; Fadilah et al. 2015). Generation Y are also well known as Millennials.

Based on the official report published by the Department of Statistics Malaysia (2016), the total Malaysian workforce is mostly composed of 6.8 million of Generation Y, followed by 4.6 million of Generation X, and the least group of employees consisting of 2.2 million of Baby Boomers. As of 2016, 49% of labor force in Malaysia consists of Generation Y (Department of Statistics Malaysia 2016). This young generation has become the largest segment of the workforce starting in 2015 and by 2025; this group will account for 75% of the global workforce in Malaysia (Janet 2015).

The 2018 statistics of workforce strength as reported by the Department of Statistics Malaysia indicates that in 2017 Gen Y employees made up 46.7% (7.0 million) of the total workforce (Department of Statistics Malaysia 2018). This has surpassed the number of Gen X (29.4%, 4.3 million) and Baby Boomers (0.5%, 69,300 thousand). This signals an important message that Gen Y is dominating the workforce market, and this number will keep increasing in the years to come. As a dominant and new emerging workforce, developing Gen Y talents and transforming them to be the powerful and efficient nation building force is very critical especially for Malaysia in charting the new pathway as an advanced, high-income nation by the year 2020.

This chapter aims to explore long-overdue issue on workplace learning involving adult Gen Y. This chapter examines the concept of adult learning and how adult learning principles fit with the unique characteristics of Gen Y. It is hoped that this chapter could enlighten the readers developing workplace learning strategies especially among adult Gen Y. This chapter is divided into several sections. The next section discusses on the contemporary issue relating to adult Gen Y at the workplace, followed by underpinning theories on learning. Section 4 discusses on the workplace learning strategies followed by proposed future research, and the last section concludes the discussions from earlier sections.

2 Contemporary Issues Relating to Adult Gen Y at The Workplace

The emergence of “Generation Y” in the labor market has changed the way organizations manage their manpower. They not only have unique characteristics such as having a strong bargaining power and being dynamic but also are demanding. However, the impact of “Generation Y” is yet to be discovered (Fadilah et al. 2015).

As the latest generation of workforce, Gen Y is highly regarded in connection with various issues for organizations (Munro 2009), particularly with the issue of low levels of job commitment (Martin 2005; Schullery 2013; Abdelbaset et al. 2015). Pay matters less to this generation as they are more particular whether the job will give them the adaptability to seek objectives in different aspects of their life (Schullery 2013; Erickson 2008). Gen Ys are more concerned with self-goal and accomplishment, they are not faithful to any organization, and they need a life outside of work (Yeaton 2008; Abdelbaset et al. 2015; Erickson 2008).

Conversely, the strengths of Generation Y are that they have exceptional knowledge in information technology (Bissola and Imperatori 2010; Raman et al. 2011; Erickson 2008), are self-reliant (Martin 2005), prefer open communication, and are effective at teamwork (Kultalahti and Viitala 2015; Myers and Sadaghiani 2010). Additionally, Gen Ys seek job autonomy and do not prefer structured work but enjoy pursuing challenges (Luscombe et al. 2013). The contrasting characteristics of Gen Y make it a challenge to manage them optimally (Eckleberry-Hunt and Tucciarone 2011; Beaver and Hutchings 2005).

Furthermore, most literatures pointed out that Gen Ys possess significant differences in characteristics as compared to the previous generations, namely Baby Boomers and Gen X (Alison Black 2010; Cekada 2012; Reilly 2012; Schullery 2013), and, thus, postulate some challenges in meeting their needs. Issues relating to Gen Y have become a national agenda in which Malaysia is encountering with brain drain or talent shortages among younger generation due to excessive migration to other countries (Abdelbaset et al. 2015).

Given that Gen Y employees are experienced adults, their learning needs and situations differ from conventional learners. Workplace learning must take into account adult characteristics as a theoretical approach for learning (Lund 2012). Lund further deliberates that adults learn in a unique way. Thus, their situations and conditions need to be addressed based on their own unique perspective. Understanding on how and what adults learn and their preferred types of learning helps improve their competency and contributes significantly toward organizational performance.

Nevertheless, study on adult Gen Y and workplace learning is given less attention, thus pushing the need for further research in this area. Several studies revealed that learning for adults did not conform to adult learning principles. Furthermore, research in learning did not distinguish the difference between adults and children (Merriam 2001a). Adult learners are mostly treated similar to conventional learners. This led to a misleading comprehension of how adults learn. Due to that, the concept of andragogy or adult learning theory (ALT) was offered to cater to the need of adult learners.

3 Workplace Learning: Theoretical Underpinning

The concept and practices of workplace learning are where work is part of learning and learning is part of work. With respect to adult learning, learning itself must be viewed from the learner's standpoint (Illeris 2003; Cekada 2012; Reilly 2012). This

is particularly true because how an adult learns might not be similar to how children learn (Lund 2012). Lund agrees that when dealing with adult learners, the usual didactical approaches might not be relevant to them. Hence, the typical pedagogical approaches need to be given different amount of attention to suit adult learners needs and requirements.

Most educational theories were developed exclusively to educate children and youth and are known as pedagogy. Pedagogy is the “the science and art of teaching,” which means to lead a child how to learn (Briggs and Sommefeldt 2002). Educational psychologists, recognizing these limitations of learning theories, developed andragogy: the theory of adult learning. Andragogy or ALT was developed out of a need for a specific theory to explain how adults learn. Knowles (1988) defines ALT as the “art and science of teaching adults.” Andragogy is centered on the notion that the teacher does not know all and that the students or learners are fully encouraged to actively participate in the learning processes by utilizing their own knowledge and experiences (McGrath 2009). The andragogy concept focuses on the learning strategies of adults and the course of actions involved in engaging adults in the learning process (Briggs and Sommefeldt 2002; Cheetham and Chivers 2001; Knowles 1988; Marquardt and Waddill 2004; Merriam and Leahy 2005; Merriam 2001a, b).

Differences between these two approaches in learning are summarized by Rogers (2002) and McGrath (2009) as depicted in Table 1.

The above differences pose a great question: What is so unique about adult learners? Literature points out that adults display characteristics that clearly distinguish them with other types of learner (McGrath 2009). Knowles (1990) argued that adult learners want to understand the purpose of learning. Armed with experience, motivation, and self-directed attitude, they are able to tackle any problem with a rational approach. Illeris (2003) maintains that adults are only interested in learning something that is meaningful or brings benefits to them; when they learn, they relate to the resources that they have, namely the past experience; adults take full responsibility in determining their course of learning action. In other words, it is their internal motivation that drives them in learning (Alison Black 2010; Faizah 2006; Hazadiah and Jamiah 2006).

According to Fadilah et al. (2015), one major shortcoming in the learning literature is the lack of attention paid to experiences which is highly tacit in nature. In fact, this is one of the major elements that differentiate the adult learners from the

Table 1 Differences between pedagogy and andragogy

Pedagogy	Theme	Andragogy
Reliant on instructors	Concept of learners	Independent
Inexperienced	Experience of learners	Have vast experience
Passive learners	Readiness to learn	Active learners
Subject-centered	Orientation to learning	Problem-centered
External pressures	Motivation to learn	Self-directed motivation

Source: Rogers (2002) and McGrath (2009)

conventional learners. Adults possess great experiences which have accumulated in their daily lives. This has brought a significant impact on how they view the world around them as a result of the experiences they have encountered in lives.

Lund (2012), based on the unique features of adult learners, has identified that adults are diverse in experiences, personalities, and learning styles. Adult learners possess a great amount of life experiences that seems to be a great source of learning, but it can also be a great hurdle in learning. Adult learners are self-directed and responsible in the course of learning, but it can be a challenge in which what they have experienced may have conflicted with the traditional teaching. What they learn must be meaningful or bring benefits to them. This is what drives them to learn. Adults learn on a voluntarily basis. They learn because they want to; they learn because it is useful for them. Thus, they take full responsibility in the learning course of action. Any attempts to make it compulsory against their free will make them apprehensive to learn.

Nevertheless, ALT has been criticized by several scholars (see Davenport 1993; Jarvis 1987; Merriam and Caffarella 1991; Cross 1981; Hartree 1984; Hanson 1996; Grace 1996; Pratt 1993). They argued that ALT as described by Knowles failed to consider various aspects on how adults learn, thus leading to a misleading comprehension. ALT provides an unclear framework and only describes the characteristics of adult learners. Furthermore, there is unclear dichotomy whether it describes adult learning or adult teaching, and also empirical testing or analysis was not thoroughly conducted (Smith 2002). As Merriam (2001a) points out, the notion that adults are self-directed learners may prove otherwise. Not all adults are fully aware and know what they want to learn. There is a need for an instructor who is able to guide them rather than having the full freedom to determine their course of intended learning.

As noted by Merriam, adult learning is a complicated matter; thus, there is no single theory that is able to explain how humans learn as well as how adults learn. There are numerous theories, models, and frameworks that have attempted to address how adults learn (Merriam 2001a, b). However, despite the criticism, ALT provides a useful doctrine in designing purposeful workplace learning among adult learners (Cheetham and Chivers 2001; Illeris 2003; Merriam 2001a, b). Lund (2012) and McGrath (2009) also concur that andragogy or ALT is still valid and reliable although the ALT assumptions are subjected to criticism by scholars who claimed that ALT only underlined the principles of good practice in teaching adults.

4 Workplace Learning Strategies and Adult Gen Y

Understanding how adults learn is a complicated matter. The development and learning strategies of adult learners are different than traditional learners. Not only that, it also varies among multigenerational workforce as each generation requires a unique learning approach (Cekada 2012; Tolbize 2008). Furthermore, what appears suitable for Gen X and Baby Boomers may produce reverse outcome for the Gen Y

(Erickson 2008). As argued by Eckleberry-Hunt and Tucciarone (2011), there is very limited research conducted on learning strategies of Gen Y. It was ill matched in terms of learning strategies related to generational differences.

With respect to workplace learning strategies for adult Gen Y, enormous literature mostly discusses on the learning strategies at the school, college, and higher learning environment (see Bohl 2008; Reilly 2012; Daly 2015; Benfer and Shanahan 2013; Raman et al. 2011). Nonetheless, very limited studies are focusing on the learning at the workplace. Interestingly, there is a mixture of findings derived from past studies.

Martin (2005) discovers that preferred learning strategies among adult Gen Y are coaching, customized learning, informal learning, flexible learning, realistic and macro-learning, independent learning, and technology-embedded learning. Meanwhile, Erickson (2008) points out some learning strategies preferred by the adult Gen Y at the workplace such as technology-embedded learning, virtual communities learning (virtual learning), online learning, collaborative learning, and informal learning.

Besides that, Eckleberry-Hunt and Tucciarone (2011) claim that Gen Ys are more inclined toward hands-on learning while utilizing their experiences and enjoy creative and interactive learning, trial and error learning, as well as learning that challenges their thinking outside the norm (think out of the box). As Gen Ys are engrossed with the technology, interactive learning fits them which allows them to be in a creative environment. Gen Ys are less favorable to traditional learning strategies, namely reading and listening to typical lectures which are highly concentrated on the teacher or educator. They love learning that involved them in a more reciprocal manner.

According to Beaver and Hutchings (2005), the Gen Ys are more inclined toward creative learning, innovative learning, conducive learning, flexible learning, experiential learning, self-learning, mentoring, and collaborative learning. Furthermore, Munro (2009) found that Gen Y-preferred learning strategies are mentoring, informal learning, hands-on learning, exploratory learning, planned and prescriptive learning (structured learning), and reflective learning. Munro also discovers that e-mentoring either via tele-conferencing or video-conferencing was not favored by the adult Gen Y at the workplace despite their strong connectivity with digital technology.

Besides, a report by Tolbize (2008) stated that Gen Y favors on-the-job learning, collaborative learning, group discussion, personal coaching, as well as self-learning. Tolbize concludes that younger generation needs are different than the older generations. Tolbize further suggests to apply multiple modes of learning to address Gen Y's needs and preferences. Matching the needs of Gen Y should be the top priority rather than applying the "blanket approach" or "one-size-fits-all approach."

Allison Black (2010) also found that Gen Ys have profound inclination toward technology-embedded learning, interactive and collaborative learning, as well as online learning which rely heavily on technology in almost every aspect of their learning processes. Gen Ys are less favorable to traditional lectures and step-by-step approach of learning. They find this method of learning dull and boring.

Meanwhile, Cekada (2012) echoes that Gen Ys are multitaskers who have the ability to perform various tasks simultaneously. They are very good with technology and expect immediate or quick response. Thus, in terms of learning preferences, they do prefer images and graphic-based learning than learning through reading the texts. Besides, they love learning by doing which allows them to explore and discover new things. They learn well using collaborative and technology-embedded learning such as wikis, blogs, and social networking. Gen Ys also love entertaining learning which utilizes games, digital media, podcasts, and mobile devices. They love all the sophisticated gadgets used in learning as they are easily attracted and entrenched with advanced technology.

Having discussed the above learning strategies and preferences of Gen Y, one should wonder whether these methods and tools are aligned with adult learner principles? Are these methods and tools and approaches able to cater to and meet the needs of adult learners at the workplace? Are Gen Y learners incline and in favor of these methods and approaches? Do these methods and approaches offer an effective and efficient way of learning at the workplace? Are the methods and approaches able to deliver the intended target set by the organization? Do organizations use “blanket approach” or “one-size-fits-all approach” for workplace learning strategies? These are some of the questions that require critical attention by the human capital manager to ensure that the development of adult Gen Y at the workplace is organized strategically to meet organizational goals.

Despite the above alarming questions, the learning strategies of adult Gen Y should have a clear mapping taking into consideration the needs of Gen Y and their characteristics as discussed in the previous sections. As argued by Cekada (2012) identifying and familiarizing the learners’ characteristics with effective learning strategies will enhance successful learning as well as create effective learning environments at the workplace. Thus, Gen Y characteristics, adult learners’ characteristics, as well as learning strategies need to have a clear mapping of comprehensive framework via extensive empirical evidence before it can be implemented for the purpose of developing talents at the workplace.

5 Proposed Future Research Works

Current adult learning theory (ALT) dimensions highlighted several factors, namely that learners are self-directed and independent learners, possess vast experiences, and are self-motivated and problem-centered (Knowles 1988, 1990). These dimensions, however, did not deliberate the course of action for adult learners to actively engage in learning. Furthermore, due to extreme differences between three main cohorts of generations, namely the Baby Boomers, Gen X, and Gen Y, the characteristics of adult learners and their learning preferences in terms of learning method and approaches might differ between these cohorts. The ALT dimensions might be incompatible with the characteristics of Gen Y with respect to their learning strategies and preferences. This poses great challenges to formulate, implement, and

regulate the learning strategies that cater best to the needs of adult Gen Y at the workplace while aiming for organizational objectives.

Considering Gen Y as adult learners, ultimately, this research is intended to develop adult learning framework that cater best to Gen Y's needs in workplace learning. Therefore, this study will revisit the abovementioned dimensions in order to cater to the current needs of Gen Y in learning. The expected outcome of this study is to provide feasible adult learning framework targeted on Gen Y. The findings obtained will benefit organizations in focusing the feasible workplace learning strategies for adult learners. This will also help organizations to maximize its internal capabilities and resources for competitive advantage.

To develop the feasible learning framework, future research should examine the current workplace learning strategies and practices for Gen Y at the workplace. Data for future research could be collected using qualitative approach for the purpose of identifying new elements or factors. The data of the study could be collected from adult learners among Gen Y and key managers of Gen Y workforce from both private and public sectors.

6 Conclusion

Organizational survival as well as attainment of its objectives relies on competent and well-trained workforce. To achieve this, workplace learning could provide the most powerful remedy. Given that Gen Y as adult learners pose distinctive differences with the traditional learners, it is imperative to explore the feasible learning strategies that fit well with Gen Y's needs and demands at the workplace. In answering this lingering question, the organization needs to take into account the principles of adult learning together with the unique characteristics of Gen Y. Efforts to match between the two nexus will help organization to devise effective learning strategies for organizational competitive advantage.

Thus, this chapter suggests that new proposed work is needed and useful in providing a sound understanding of Gen Y characteristics, behaviors, and preferences as the new emerging workforce generation. In addition, it provides feasible adult learning framework that helps organizations to revisit their current policy, program, or practice of talents development. The newly proposed adult learning framework helps Malaysia to further strengthen national human capital development, especially the adult Gen Y workforce toward becoming a competitive high-income nation by the year 2020. Furthermore, the framework will cater for the needs to have a steady, robust, and learned future generation that will lead the organization and the nation.

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What About Coordination, Transparency and Anticipation in Projects? A Systematic Review of “Controlling” of Projects, Especially of Public Infrastructure Projects



Pia Herrmann and Konrad Spang

Abstract Managing infrastructure projects remains challenging, and especially large infrastructure projects are often criticised for cost overruns and time delays. With the help of controlling, a peculiarity of German-speaking countries, project management and thus project performance can be improved since controlling ensures transparency within the project and supports coordination and anticipation. Furthermore, controlling can improve the quality of decision-making, the ability to respond and adapt to internal and external changes. However, research on controlling within German-speaking countries has been almost isolated from international research. Consequently, conducting a literature review is faced with linguistic challenges and requires some preparatory work. Therefore, the purpose of this chapter is to fulfil three ambitions: First, based on an introduction to public infrastructure projects, this chapter suggests requirement categories for the controlling of public infrastructure projects. Second, by specifying the understanding of controlling, a controlling system framework is proposed. Third, based on the categories suggested and the framework developed, this chapter presents a literature review on controlling of (public) infrastructure projects. Thereby, this chapter provides a common basis for developing an integrated controlling system. Furthermore, by structuring the selected articles based on the controlling system framework, initial experiences in applying the framework were gathered and requirements for adjustments were identified.

Keywords Project management · Public infrastructure projects · Controlling · Project control · Management accounting

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1 Introduction

On the one hand, public construction and infrastructure projects are relevant. On the other hand, the management of these projects remains criticised (Federal Ministry for the Environment, Nature Conservation and Nuclear Safety ed. 2016). Exceeding costs and time delays of large public and infrastructure projects are often criticised—nationally and internationally (Flyvbjerg 2009; Morris and Hough 1987; Federal Ministry of Transport and Digital Infrastructure, ed. 2015; Riemann and Spang 2014; Sözüer and Spang 2014). An analysis of large infrastructure projects in Germany concludes that the absolute additional costs (in addition to the planned costs) are highest in the transportation sector (Kostka and Anzinger 2016).

Therefore, the first question to be answered is how to support project objectives and project success. Referring to project success, project success criteria and project success factors should be distinguished: Project success criteria are used to evaluate success, whereas the consideration of project success factors promotes successful completion of projects (e.g. Albrecht and Spang 2011; Cooke-Davies 2002; Joslin and Müller 2016). With regard to the question mentioned above, success factors are relevant and contribute to the achievement of objectives and the success of those projects.

The literature on project success factors is extensive. According to Fortune and White (2006), success factors sometimes relate to specific project types (examples of success factors in: Federal Ministry of Transport and Digital Infrastructure, ed. 2015; Spang 2016a). In other cases, they may be limited to a specific sector or are generally applicable (e.g. Pinto and Slevin 1987; Cooke-Davies 2002). The analysis of success factors—generally applicable and specific ones—shows that planning, monitoring, anticipation, risk management, control, integration as well as transparency are considered as success factors (e.g. Pinto and Slevin 1987; Cooke-Davies 2002; Federal Ministry of Transport and Digital Infrastructure, ed. 2015; Spang 2016a). The discipline of controlling can be seen as a peculiarity of German-speaking countries (e.g. Küpper et al. 2013). Even though, there is no consensus on what really constitutes the core of controlling (e.g. Binder 2006; Wall 2008), different controlling approaches share common characteristics (Binder 2006): Controlling is about management support, information, anticipation as well as about transparency, coordination and integration.

With regard to the initially formulated question and focusing on the success factors, it is controlling that plays an elementary role in the achievement of objectives and therefore the chance of successful project completion—especially within large and infrastructure projects. Therefore, it is crucial to elaborate how controlling has to be designed. This chapter aims at answering the following research question: What is the current state of international research literature on controlling of (public) infrastructure projects? Therefore, the purpose of this chapter is to provide an overview of the available international research literature on controlling of (public) infrastructure projects.

However, providing an overview of the available literature entails two challenges: First, controlling is a German peculiarity and “the community of Controlling researchers has long been largely isolated from the international community” (Schäffer 2013, p. 294). At the same time, the term controlling can be seen as made-up (Binder 2006). Therefore, it is difficult to simply search the keyword “controlling” (Richter 1987), which becomes apparent by searching for “controlling” for public infrastructure projects in EBSCOHost / Business Source Premier (search fields: title and abstract, limited to academic journals only, search terms: Transport* / Infrastructur* Project* AND Public* / Governm* AND Controlling; July 2018). The search led to only one result, which was irrelevant concerning the research question. Secondly, the discipline of controlling is very broad and partly controversial. Therefore, several search terms seem to be necessary.

In order to achieve the presented purpose and since preparatory work is required, this chapter aims to fulfil three ambitions, processed in sequence: First, this chapter suggests requirement categories for the controlling of public infrastructure projects. Second, it proposes a controlling system framework for public infrastructure projects. Third, the literature review is performed and the selected articles are discussed.

2 Requirements for the Controlling of Public Infrastructure Projects

In order to identify search terms, we specify our understanding of controlling. In order to structure search results, we define requirements for the controlling of public infrastructure projects. For this purpose, we use two perspectives: We define requirements based on controlling and based on public infrastructure projects. By combining these perspectives, we propose an integrated controlling system framework for public infrastructure projects.

2.1 Developing Requirements based on Controlling

2.1.1 Introducing Controlling

Controlling has its roots in the USA and was developed—in its present form—during industrialisation (Gleich et al. 2015). Unlike the USA, “controlling only spread in Germany in the second half of the 1950s” (Gleich et al. 2015, p. 22; Küpper et al. 2013). Today, the German literature on controlling is rich, and controlling is considered to be established in research (Scherm and Pietsch 2004) as well as in practice (Küpper et al. 2013). However, controlling is also characterised by a self-discovery debate (e.g. Binder 2006; Wall 2008), and a common understanding of controlling is still lacking (Binder 2006; Wall 2008). Furthermore, due to many years of research isolation (Schäffer 2013), the German-language literature on

controlling is hardly found in international research and literature (e.g. Küpper et al. 2013). In contrast, its content is discussed internationally under “management accounting”, “managerial accounting” or “management control” (e.g. Gleich et al. 2015, pp. 14–15; Küpper et al. 2013, pp. 8–9). Vesper elaborates twelve English terms, which are relevant for the understanding of controlling within German-speaking countries and if the term “controlling” is used, it is more likely to be used as a phase of the management cycle (Vesper 2014).

Today, controlling covers a wide range of processes: It supports, supplements and limits management. In particular, controlling supports management by assuring “economic transparency”, by contributing “to rational corporate management” as well as by designing and developing instruments and systems (International Controller Association and International Group of Controlling ed. 2012, p. 6). Because of the linguistic challenges on the one hand, and the covering of a wide range of processes on the other hand, controlling shall be specified.

2.1.2 Specifying Controlling

In German-speaking countries, controlling conceptions play an important role in controlling research (Binder and Schäffer 2005). According to Küpper et al. (2013), those conceptions characterise the function of controlling. In order to specify controlling, we characterised those conceptions based on criteria, e.g. controlling purposes, objectives and stages.

Concerning controlling purposes, the considered controlling conceptions contain two directions: On the one hand, controlling aims for improving management or control; on the other hand, controlling aims for achieving corporate goals. Whether controlling supports achieving all corporate goals, or exclusively financial goals, is the subject of a controversial debate in research (e.g. Küpper et al. 2013; Wall 2008). By combining two older controlling studies (Baumgartner 1980; Harbert 1982) with controlling conceptions and additional controlling literature, the following five controlling objectives were specified: 0) management support, 1) anticipation, responsiveness and adaptability, 2) integration and coordination, 3) ensuring transparency and 4) ensuring rational decisions. Furthermore, the idea of controlling as management support is important but imprecise (Binder 2006). Therefore, the objective of management support serves as a guiding principle within our research.

The defined purposes and objectives of controlling are summarised in Fig. 1.

In order to further specify controlling, the guiding principle “controlling for supporting management” is applied. Since management can be seen as management cycle (Weber 1997), we suggest that controlling supports management by collecting actual data, measurement, monitoring, control, analysis and evaluation as well as processing. Furthermore, we propose controlling as a continuous cycle, as it enhances management permanently. Moreover, controlling findings consistently influence new controlling processes and add to its optimisation. In addition, we propose to supplement the controlling cycle by reporting and continuous learning (idea extracted of Bauer 2002 as well as of ISO 9000:2015 (International

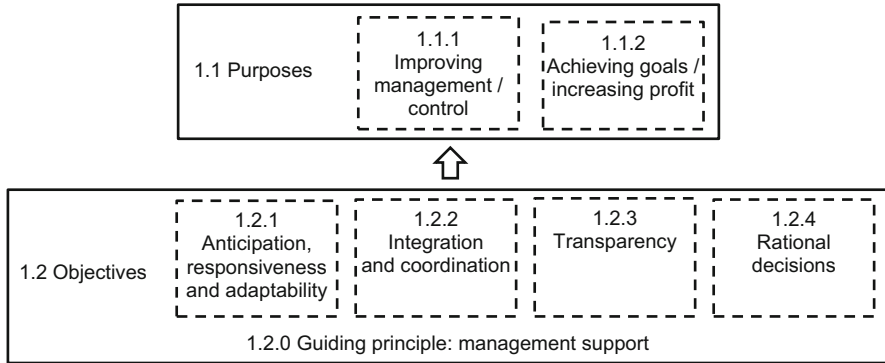


Fig. 1 Purposes and objectives of controlling. **Source:** authors

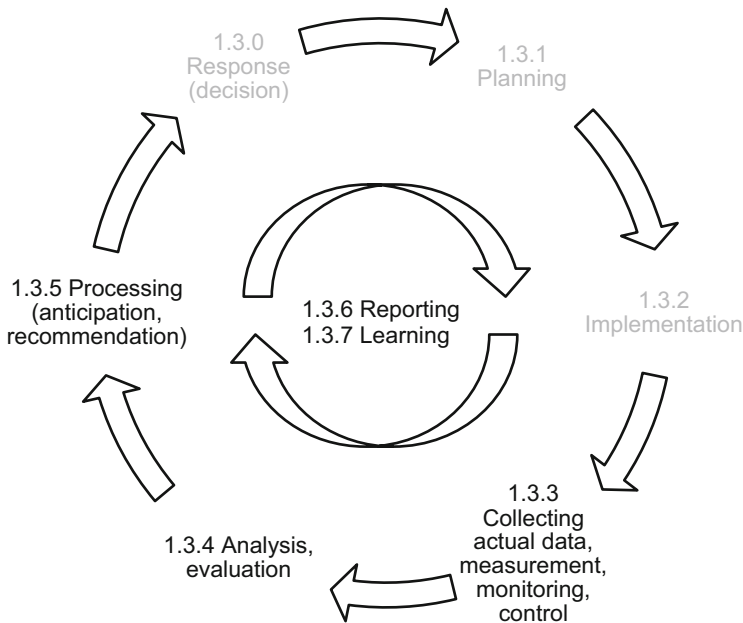


Fig. 2 Controlling cycle. Source: authors based on, e.g., Spang 2016c

Organization for Standardization 2015a), Fig. 2 and ISO 9004:2009 (International Organization for Standardization 2009), Fig. 1). Whereas the stage reporting is based on controlling conceptions, the stage of continuous learning is based on the idea of continually improving controlling itself. The proposed controlling cycle is shown in Fig. 2.

As Fig. 2 shows, the grey stages (1.3.0, 1.3.1, 1.3.2) are not considered as key elements (1.3.1) or elements (1.3.0, 1.3.2) of controlling.

By defining the purposes, objectives and stages of controlling, controlling has been specified. This specification allows identifying search terms for the literature review. Furthermore, in order to develop an integrated controlling system, purposes, objectives and stages of controlling are required. However, developing the integrated controlling system as well as identifying additional research gaps requires more than specifying controlling. It requires defining those elements or perspectives that are necessary for establishing and conducting controlling. We call them the “developing perspectives”.

2.1.3 Identifying “Developing Perspectives” of Controlling

Identifying the developing perspectives is based on the idea of controlling as controlling system (for applying the idea to project management, see Herrmann 2016 and Herrmann and Krauss 2017). This idea was inspired by project and quality management: Organisations implement project or quality management systems containing those elements that are required for project or quality management (project management system: Deutsches Institut für Normung (2009); quality management system: International Organization for Standardization (2009; 2015a; 2015b)). By transferring this idea to controlling, the controlling system contains those elements, which are required for controlling.

Based on controlling literature, the developing perspectives, named function, structure, people, resources (non-human) as well as partners and context, were derived. Thereby, e.g., the perspective people was based on the relevance of skills, behaviour (e.g. Küpper et al. 1990) and culture and the perspective of partners and context was based on considering controlling as support and cross-divisional function (Weber in Binder 2006), and thus being dependent on its context (e.g. Bauer 2002 with reference to Zünd, 1985 and to Deyhle, 1993).

Furthermore, experiences gained in a master thesis (Herrmann 2016) and structures of management systems served to define the developing perspectives (International Organization for Standardization (2009, 2015b); EFQM® as well as Project Excellence Model® (Westerveld 2003); St. Galler Management-Concept (Bleicher and Abegglen 2017)). Fig. 3 summarises the developing perspectives for an integrated controlling system.

Whereas the developing perspective function describes the content of controlling, the developing perspectives structure, people, resources and partners and context arise from the idea of developing a controlling system. For this reason, it is proposed to call these four perspectives system perspectives. We conclude that developing an integrated controlling system requires establishing the developing perspective function as well as the system perspectives constituting requirements for a controlling system. After having developed requirements based on controlling, we continue by developing requirements based on public infrastructure projects.

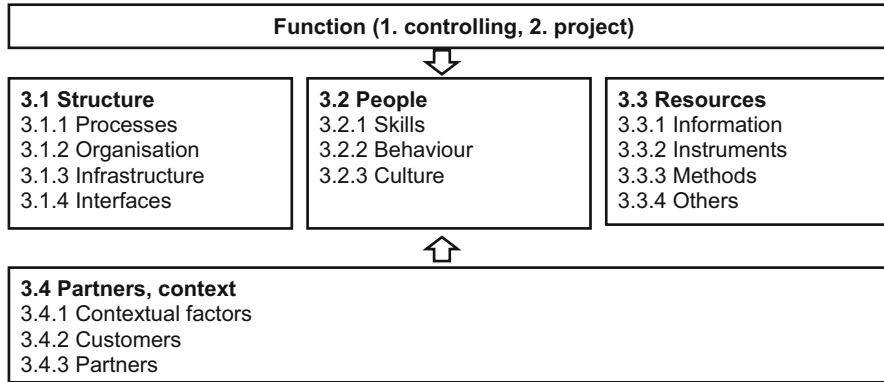


Fig. 3 Developing perspectives of controlling. **Source:** authors

2.2 *Developing Requirements Based on Public Infrastructure Projects*

Public infrastructure projects are projects. Therefore, we identify project attributes at first. Thereafter, we identify additional attributes by studying the success of projects for developing a controlling system, which supports successful projects. In order to develop initial requirements based on public infrastructure projects, we apply the identified attributes to public infrastructure projects, especially in Germany.

2.2.1 Identifying Project Attributes

The project management literature contains several project definitions, characterising projects as organisation, process or system. By considering the project as process, projects transform input into output (e.g. Shenhar and Dvir 2007; Turner and Keegan 1999). Turner and Cochrane (1993) differentiate “between the objectives of a project (the facility it will produce) and the purpose of a project (the benefit expected from operating that facility after completion of the project)” (p. 93). To fulfil the projects purpose, three types of breakdown structures are required according to Turner and Cochrane (1993): the product breakdown, the organisation breakdown and the work-breakdown structure. Turner (2006a) adds that defining a project requires also defining the outcome, output and required resources, while Xue also adds the definition of the impact (Turner and Xue 2018 with reference to Xue 2009). Furthermore, the product as well as the project process (Project Management Institute ed. 2017) can be divided into stages (Turner 2006b), sometimes being characterised by its own goals and challenges (e.g. de Wit 1988; Jugdev and Müller 2005). Moreover, projects are characterised as being basically unique and novel (representing a sufficient condition according to Spang 2016a) as well as being temporary (e.g. Project Management Institute ed. 2017, representing a necessary

condition according to Spang 2016a). However, in many definitions, it remains open as to when a project starts: does it start after defining the goals (e.g. ICB 4.0 (International Project Management Association ed. 2015); DIN 69901-5:2009-01 (Deutsches Institut für Normung 2009)), or during identifying the problem or need (Samset 2009)? Other typical characteristics of projects are the limitation of allocated resources, the specific project organisation (e.g. Turner and Müller 2003) as well as project stakeholders (e.g. Project Management Institute ed. 2017).

2.2.2 Identifying Project Success Attributes

Project success can be defined as “multi-criteria approach” (Dvir et al. 2003, p. 90). Whereas the iron triangle, including time, cost and quality or scope, remains crucial (Pollack et al. 2018), these three factors cannot always explain project success (e.g. de Wit 1988; Dvir et al. 2003; Joslin and Müller 2016; Jugdev and Müller 2005; Spang 2016a). According to de Wit (1988, p. 164), “the most appropriate criteria for success are the project objectives”. However, projects are characterised by several stakeholders, sometimes pursuing different objectives. Therefore, project success cannot be evaluated from only one perspective and, in addition, not from only one point in time (e.g. de Wit 1988; Shenhar et al. 1997; Turner and Zolin 2012).

2.2.3 Identifying Attributes of Public Infrastructure Projects

Public infrastructure projects encompass, among others, the construction of roads and railways. These projects are often large scale and result in major interventions. By intervening and disturbing, infrastructure projects influence many people, organisations and the environment. Furthermore, infrastructure projects in Germany are generally financed by public funds, resulting in, among others, public and political interest for these projects (Elbaz and Spang 2018; Spang 2016a).

Furthermore, public infrastructure projects pass several stages (e.g. Spang 2016b), which may vary in terms of stakeholders, success criteria and political responsibilities (Elbaz and Spang, 2018; Spang 2016b). Public infrastructure projects are usually characterised by long and formalised planning stages as well as by public participation or consultation (Riemann and Spang 2014). Due to processing natural building materials, weather conditions and complicated technical solutions, changes and disturbances within infrastructure projects are unavoidable (e.g. Flyvbjerg 2009 and 2014; Sözüer and Spang 2014; Spang 2016a). Furthermore, rising expectations regarding public participation and project disturbances caused by public dissatisfaction can be observed (e.g. the project Stuttgart 21; see Bretschneider and Schuster 2013).

2.3 Proposing Requirements for the Controlling of Public Infrastructure Projects

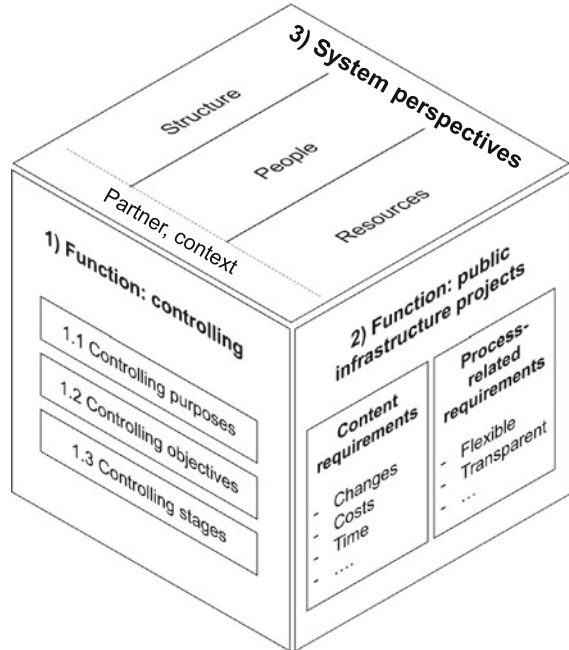
So far, we specified controlling and public infrastructure projects. Now, we are able to initially define project controlling and derive requirements for the controlling of public infrastructure projects afterwards. As initial definition, we propose that project controlling aims to improve project control or management, to achieve project goals and to increase project success. In order to fulfil these purposes, project controlling aims to support management by anticipating, responding and adapting to external and internal changes, by ensuring integration and coordination, by ensuring transparency as well as by supporting rational decisions. To extend the understanding of project controlling, we propose to characterise project controlling as controlling cycle, consisting of collecting actual data, measurement, monitoring and control; analysis and evaluation; processing; and being accompanied by reporting (including information and communication) as well as by learning.

As part of future research, we still have to define controlling tasks. However, since the stages allow identifying differences between definitions of project controlling, considering project controlling as controlling cycle is of great help in structuring and reviewing the existing literature. After all, there are differences between existing definitions: The German project management standard DIN 69901-5:2009-01 (Deutsches Institut für Normung 2009) defines project controlling very similar to our definition. The PMBOK® (Project Management Institute ed. 2017) contains, besides others, the processes “Direct and Manage Project Work”, “Perform Integrated Change Control” and “Monitor and Control Project Work”. “Monitor and Control Project Work” is defined as “the process of tracking, reviewing, and reporting the overall progress” (p. 105). Furthermore, the PMBOK® explicitly refers to one of its benefits, which is “recogniz[ing] the actions taken to address any performance issues” (p. 105), whereas, e.g., “approving changes” is located in the process “Perform Integrated Change Control” (p. 113). German project management literature sometimes differentiates between planning, directing or control and monitoring, without considering controlling (e.g. Bea et al. 2011 or Burghardt 2018). Based on those few examples—and we have not yet addressed the project management standard ICB 4.0 (International Project Management Association ed. 2015)—it is already obvious that structuring is needed.

After having developed attributes of public infrastructure projects, those attributes were applied to requirements for the controlling of public infrastructure projects. Due to their initial state of development, the requirements were aggregated to requirement categories. Thereby, differentiating between content and process-related requirement categories (founded on Ebert 2014) turned out to be useful: The content requirement categories describe the content of controlling (or controlling objects, what should be controlled), and process-related requirement categories describe how controlling should be executed. In summary, we propose the following requirement categories.

Fig. 4 Controlling system framework for the controlling of public infrastructure projects.

Source: authors, presentation as cube from Herrmann 2016



Requirement categories, content: 2.c1 dependencies and interactions, 2.c2 changes, 2.c3 special features, 2.c4 success factors, 2.c5 success criteria and objectives, 2.c6 costs and budget, 2.c7 organisation, 2.c8 stages and life cycle, 2.c9 product requirements, 2.c10 resources, 2.c11 risks and opportunities, 2.c12 stakeholders, 2.c13 team, 2.c14 versions, scenarios, 2.c15 contract, 2.c16 work, 2.c17 environment and indirect topics, 2.c18 knowledge, 2.c19 time.

Requirement categories, process-related: 2.p1 flexible, 2.p2 holistic, 2.p3 integrated, 2.p4 comprehensible, 2.p5 scalable, 2.p6 structured, 2.p7 transparent.

Combining the knowledge gained by developing requirements based on controlling and based on public infrastructure projects, we present the following controlling system framework. The framework consists of three perspectives, presented as cube in Fig. 4.

1. Functional perspective, requirements based on controlling
2. Functional perspective, requirements based on public infrastructure projects (draft of requirement categories)
3. System perspectives

These three perspectives serve as a basis for the following literature review as well as for the further development of the integrated controlling system in future research.

3 Literature Review

3.1 Methodology and Approach

To achieve the research goals, a systematic literature review was conducted (following e.g. Geraldi et al. 2011; Petticrew 2001) by using the database EBSCOHost/Business Source Premier. The review focuses on international research literature concerning controlling of (public) infrastructure projects. As the focus was on international research literature, only English articles of the category “academic” were included. Furthermore, the search fields “title” and “abstract” were used. Therefore, the search terms had to be included either in the title or in the abstract.

We verified whether the database contains relevant project management journals (International Journal of Managing Projects in Business: abstracts included since 06.01.2011; International Journal of Project Management: abstracts included since 07.01.1997; Project Management Journal: abstracts included since 06.01.1997).

Due to the challenge of searching for controlling, several search phases, terms and steps were defined and are shown in Table 1.

- *Search phases*, determined by grouping search terms. Search phase 0: Searching for controlling.

Table 1 Search process

<i>Search phase 1</i>	<i>Search phase 2</i>	<i>Search phase 3</i>
Searching for “ <i>translations</i> ” of controlling, mentioned in German literature.	Searching for controlling <i>objectives</i> .	Searching for controlling <i>stages</i> (if not already covered by phases 1 or 2)
<i>Search terms:</i> 1. Control* (covers management and managerial control, management control system, controllership) 2. Accounting* (covers management and managerial accounting, management accounting system)	<i>Search terms:</i> 1. anticipat* 2. forecast* 3. react* 4. adapt* 5. responsiv* 6. integrat* 7. coordinat* 8. transparen* 9. rational* 10. support AND management OR decision	<i>Search terms:</i> 1. monitor* 2. measur* 3. evaluat* 4. report* 5. assess* Searching for monitor* showed the synonymous use of assess. Therefore, assess was integrated into the search.
-	Search term 10: in the evaluation with the consecutive number “0”.	Since many irrelevant results are expected, it was not searched for inform*, communicat* and learn*.

As indicated, we used the asterisk wildcard (*) to search for different word endings

Source: authors

- *Search terms*, derived from controlling “translations”, controlling objectives and controlling stages as shown in Table 1. Seeming to be too general, the controlling purposes were not used as search terms.
- *Search steps*, based on whether the search refers to public infrastructure projects (search step 1, search for public* OR govern* as well as infrastructure* OR transport*), infrastructure projects (search step 2) or projects (search step 3). Searching separately for public projects was not considered as being useful.

Assuring the identification of each search run, an indicator was created as follows: for phase 1, search term accounting* (term 2), search step public infrastructure projects (step 1), the indicator is 121. This article contains search step 1 as well as partly search step 2 (including phase 1).

3.2 Selection

The identified articles were exported and integrated into a literature management database. A check of doublettes was directly performed. Based on reviewing the abstracts (first check), the sample was refined. If an article seemed to be relevant, its full text served to further refine the sample (second check). If an article covered “only”, e.g. stakeholder management, the article was not selected. For two articles, the full text is not yet available. Therefore, these articles are provisionally selected and their subjective relevance is based on their abstracts.

Finally, 35 articles were selected (including two provisionally selected articles); see Table 2.

Since the selected articles differ regarding their relevance to the research question—containing a controlling input or a complete controlling stage—a subjective relevance assessment was integrated, ranging from 1 (little relevant) to 3 (highly relevant). Although being subjective, this assessment serves as initial orientation.

- Relevance of 1, little relevant: Covering a factor (factors) that has to be controlled (“what”), covering relevant aspects
- Relevance of 2, relevant: Covering controlling approaches (“how”), or models that are useful but not controlling-specific
- Relevance of 3, highly relevant: Covering specific controlling instruments, frameworks, specific experiences

Table 2 Overview selected articles

Search term	(1) indi- cator	(2) no. of search res.	(3) thereof = (1)-(2)	(4) rel. res. after 2nd check	(5) there- of 1	(6) there- of 2	(7) there- of 3	(8) rel. res. incl. doubl. after 2nd check	(9) prop. of rel. res. after 2nd check - all res.	(10) there- of 1	(11) there- of 2	(12) there- of 3
control*	111	33	0	33	2	1	3	6	1.67%	2	1	3
account*	121	5	0	5	0	0	0	0	0.00%	0	0	0
Phase 1, step 1	38	0	38	6	2	1	3	-	-	-	-	-
anticipat*	211	9	0	9	1	0	1	1	0.28%	0	1	0
forecas*	221	10	1	9	0	0	0	0	0.00%	0	0	0
react*	231	10	3	7	1	0	1	2	0.56%	0	1	1
adapt*	241	12	3	9	2	0	2	2	0.56%	0	2	0
responsiv*	251	0	0	0	0	0	0	0	0.00%	0	0	0
integrat*	261	43	6	37	5	1	4	6	1.67%	2	4	0
coordinat*	271	16	5	11	1	0	0	3	0.83%	1	2	0
transparen*	281	13	3	10	0	0	0	0	0.00%	0	0	0
rational*	291	15	6	9	0	0	0	2	0.56%	0	1	1
decision OR management support	201	3	2	1	0	0	0	0	0.00%	0	0	0
Phase 2, step 1	131	29	102	10	2	8	0	-	-	-	-	-
monitor*	311	17	5	12	1	0	1	2	0.56%	0	1	1
measur*	321	14	38	5	2	2	1	6	1.67%	2	2	2
evaluat*	331	85	33	52	2	1	0	6	1.67%	3	2	1
report*	341	54	19	35	0	0	0	2	0.56%	1	0	1
assess*	351	82	49	33	1	1	0	4	1.11%	2	1	1
Phase 3, step 1	290	120	170	9	4	4	1	-	-	-	-	-
control*	112	69	34	35	8	13	4	-	-	-	-	-
accounting*	122	20	5	15	10	4	5	17	4.72%	3	6	8
Phase 1, step 2	89	39	50	10	0	0	0	0	0.00%	0	0	0
Total	-	-	-	360	9	17	9	35	selected articles correspond to 10 %	-	-	-

Abbreviations: doubl. = doublette, no. = number, prop. = proportion, rel. = relevant, res. = results
 indicator: search phase II search term II search step --> 291 indicates search phase 1, term 9, step 1

Source: authors

3.3 *Findings and Discussion*

3.3.1 **Overview**

Table 2 provides an overview of each search run. In order to identify the most successful search terms, the doublettes are taken into account. Out of 360 identified search results, 35 were selected (corresponds to 10 %; relevance of 3: nine papers; relevance of 2: 17 papers; relevance of 1: nine papers). Most of the selected articles were identified searching for control* in search step 2, followed by searching for control* in search step 1 and searching for integrat*, measure* and evaluat* in search step 1. It is striking that none of the selected articles describes a German case study.

Since a limited number of relevant articles were selected, it is difficult to identify precise research gaps. For this reason, we give an overview of the selected articles, relevance of 3. Following this, the controlling system framework serves the evaluation of review findings and allows the identification of further research questions. For this purpose, the selected articles were assigned to the controlling objectives and stages, to the project content and process-related requirements as well as to the system perspectives.

Within this paper, only identified search results with the subjective relevance of 3 are listed in the references. Please note that our findings are also based on references with the relevance of 2 and 1. However, since we did not quote these papers within this paper, we do not list them in our references. Interested readers can request all identified references from the authors.

3.3.2 **Selected Articles, *subjective Relevance of 3 (highly relevant)***

Boersma et al. 2007 (ID 6, indicator 111, full text): By using “the triple paradox” (p. 78) – the cost, control and risk paradox – this paper reflects upon a large Dutch infrastructure project. According to the authors, the project was characterised by the philosophy “decentral unless. . .” (p. 78). This philosophy caused “conflicts between the principal [. . .] and agencies or project-agency managers” (p. 78). As problems increased, the project was reorganised by adapting the philosophy to “central unless” (p. 78). Furthermore, the authors describe quarterly reports, including the topics “time and cost: technical development, risk calculation, human capacity, environmental developments, and communication” (p. 78 and 81). “Although the (quarterly and annual) reports were available from the intranet, only a small group of professionals were able to read and interpret the report results” (p. 82). According to the article, “[p]roject-agency managers ‘translated’ the results in terms of their own organizational reality and strategically presented the information for their own purposes” (p. 82). The article concludes by discussing the following lessons learned: “Know who is responsible” (p. 81), “Contracting does not solve the issue of

responsibility” (p. 81) and “Separation leads to (a certain amount of) professional 'ivory tower' entrapment” (p. 81).

El-Sabek and McCabe 2017 (ID 317, indicator 112, full text): Based on a case study in Qatar, El-Sabek and McCabe describe, “how the Last Planner® System (LPS®) was used [...] to bring critical project elements back from the brink of failure” (p. 26). The authors conclude that “[t]he introduction of LPS® tools resulted in a rapid learning process with enhanced productivity and efficiency” (p. 42). By applying LPS®, they were able to minimise waste, promote teamwork and improve communication – even with sub-contractors, as well as to improve monitoring and planning.

Kivilä et al. 2017 (ID 323, indicator 112, full text): By conducting a single-case study on a large infrastructure project in Finland (alliance contract), the article aims “to identify the control practices that a project organization uses for sustainable project management” (p. 1167), “especially in the project execution phase” (p. 1169). By analysing the case study, the authors quote that “[t]he interviewees emphasized the importance of the financial incentive model of the alliance contract as a key control mechanism in sustainable project management” (p. 1175). Furthermore, they “described how the main goals of the project were included in the incentive model” (p. 1175) and that measurements and key performance indicators “were finally connected to the financial bonuses and sanctions” (p. 1176). Kivilä et al. conclude by integrating the identified control mechanisms in their proposed initial framework.

Liu et al. 2014 (ID 16, indicator 111, full text): Due to the “poor delivery performance of infrastructure projects” (p. 791), the authors examine control mechanisms. They “investigate through a case study of a complex engineering project [...], how control should be structured” (p. 792). They analyse a nuclear research reactor in Australia based on output, input, clan and behaviour control. The case study “confirms the need to look beyond the application of a single control mode” and “provides insight into how modes can be effectively combined” (p. 800). Based on case findings, the authors conclude, “that input, output and clan control were used as an effective combination along with a conscious decision to avoid behavioral control” (p. 800). Concerning output control, the authors emphasise the ability of verification and that the client “relied extensively on risk management to minimize the potential variance on expected outcomes” (p. 797). Regarding input control, the authors highlight the “rigorous selection process” (p. 800) of staff and prime contractor. Furthermore, the authors identified the significance of clan control. Liu et al. conclude by suggesting a “harmonic use of control modes” (p. 801).

Liu et al. 2014 (ID 177, indicator 321, full text): Liu et al. state that “[i]ncomplete and ineffective performance evaluation” (p. 1) contributes to difficulties of social infrastructure PPP [public private partnership] projects “during construction and operation” (p. 1). Due to limited research in this area, the authors “determine the current nature of PM [performance measurement] in Australian PPPs” (p. 1) by conducting interviews. According to the interviews, the performance measurement relies “on the iron triangle of TCQ [time, cost, quality], though an array of qualitative and quantitative KPIs [key performance indicator] are widely applied and used for

the projects' operations" (p. 7). Agreeing on the simplistic and therefore insufficient nature of the iron triangle, Liu et al. propose "a lifecycle PMF [performance measurement framework]" (p. 6). The framework includes stakeholder orientation in order to improve performance measurement further.

Priemus 2007 (ID 329, indicator 112, full text): The article examines and elaborates inquiry findings, concerning the preparation of two large projects, conducted by the Dutch Parliamentary Commission on Infrastructure Projects. The final report identifies "many shortcomings in the decision-making procedures" (p. 71). "Regarding the proposals by the Parliamentary Commission" (p. 80), the article discusses, among others, the recommendation "to use information on cost and benefits, provided by those stakeholders who will bear the risks [...]" (p. 80). Furthermore, the article outlines the periodic progress reports, their addressed contents and the topic of "quality of information received" (p. 83). Concerning this topic, "a 'rapporteur' for each large project" and "a new knowledge and control centre" (p. 83) are proposed. The paper concludes by presenting five suggestions, addressing "the general flaws in the decision-making processes for large infrastructure projects" (p. 90).

Shaikh 2010 (ID 27, indicator 111, abstract): The article attempts "to show how a particular operation within a large-scale project can be scheduled by LOB method" (LOB = Line-of-Balance as scheduling method)". The method is applied to a bridge construction project. *Since the full text of this article is not yet available (status: requested), the article is not yet assigned to the controlling system framework.*

Stubbs 2013 (ID 334, indicator 112, full text): This article addresses how system engineering principles were used "with the objective to plan, define, deliver, commission, assure and transfer into successful operations and maintenance" (p. 26) and concludes by proposing the use of system engineering in complex projects like the described East London line railway project. They "defined a system architecture which identified systems elements, interfaces and boundaries" (p. 27) for the project and developed the system architecture "in parallel with the technical requirements and interface registers" (p. 27). Stubbs offers "good practices", which "were used and developed on the project" (p. 30).

Wang et al. 2017 (ID 341, indicator 112, full text): This article presents "a detailed case study on the methods and organisational structure used for controlling the time schedule" (p. 862) applied to a "HOPSCA" project, which stands for "hotels (H), office buildings (O), ecological parks (P), shopping malls (S), convention centres (C) and apartment buildings (A)" (p. 862, with reference to Hu et al. 2011) in China. The authors specify, "'Project Controlling' includes [...] project monitoring, project assessment, reporting, project steering and initiating project changes" (p. 864). According to Wang et al., "the 'Project Controlling' approach is increasingly being considered as a method that is best undertaken by an independent consulting business" (p. 864, with reference to Jia and Wang 2003 and to Shuai and He 2011) and that time scheduling is "the most important part of 'Project Controlling'" (p. 864). The authors conclude that establishing "a 'Project Controlling Unit' that has no business interest with the various contractors but takes

responsibility for project progress across all the project enables both independent guidance to the client and assistance to other participating organisations” (p. 871).

3.3.3 Evaluation

Although we identified only nine articles with the subjective relevance of 3 (highly relevant), those articles provide a good start into subsequent research. After reviewing and summarising the selected articles, we assigned these articles to the framework perspectives based on the content of the articles. If the full text is not yet available, the article is not assigned. Assigning the articles allowed us to identify at least further research questions. Furthermore, by applying the controlling system framework for the first time, we identified adjustment requirements and questions regarding the framework. In the following, we structure our findings based on the controlling system framework perspectives. Thereby, we address the identified adjustment requirements and questions regarding the framework.

Framework perspective function, controlling requirements, controlling objectives (1.2.1-1.2.4): Whereas the objectives 1.2.1 to 1.2.3 (anticipation and adaptation, integration and coordination, transparency) are often covered by the selected articles, the aspect of rationality (1.2.4) is hardly represented (exceptions are, e.g., Boersma et al. 2007, Priemus 2007). Furthermore, the understanding of transparency has to be specified.

Framework perspective function, controlling requirements, controlling stages (1.3.1-1.3.7): By assigning the selected articles to the controlling stages, the differentiation between the phases 1.3.3 (monitoring) and 1.3.4 (analysis) did not provide any additional value, since the articles usually do not differentiate between those. Furthermore, it should be discussed if integrating collecting actual data and measurement into stage 1.3.2 (implementation) could be useful as the topic of collecting data is rarely discussed. The assignment demonstrates the close relationship between planning and controlling since some selected articles are relevant for planning (1.3.1). Therefore, it should be examined whether the planning stage can still be regarded as not being a key element of controlling. In addition, the assignment shows that stage 1.3.5 (processing) is rarely discussed and therefore requires more research, as does the topic of collecting actual data.

Framework perspective function, requirement categories of public infrastructure projects, content: The most frequently addressed content requirement categories are success criteria and objectives (2.c5), costs and budget (2.c6), organisation (2.c7) and risks and opportunities (2.c11). In contrast, the categories special features (2.c3), team (2.c13), versions, scenarios (2.c14) and environment (2.c17) are documented as covered only once. However, these findings should not be overestimated, as the categories need to be reviewed. Hence, it should be verified if public infrastructure projects have special features (2.c3) that cannot be covered by the other categories and therefore justify a separate category. Furthermore, it is required to distinguish the category environment (2.c17) from organisation (2.c7) and stakeholders (2.c12) as well as the category team (2.c13) from organisation (2.c7). Concerning the

alignment of the framework, it should be discussed whether the categories should refer to only one project type or whether it is conceivable referring to both “purely” public and PPP projects. Finally, it should be examined as to whether the category versions, scenarios (2.c14) is already covered by the process-related requirement flexible (2.p1).

Framework perspective function, requirement categories of public infrastructure projects, process-related: Process-related categories covered the most are integrated (2.p3) and transparent (2.p7). Whereas assigning the selected articles to the controlling objectives demonstrated the need to specify transparency, assigning the selected articles to the process-related categories showed the need to differentiate between transparent and comprehensible (2.p4). Moreover, the process-related categories revealed balancing flexibility and control as a relevant controlling topic. In this context, the article of Walker and Shen (2002) led to the question, if the category “agile” should be added. It is striking that scalable (2.p5) is only addressed once. Concerning holistic (2.p2), it should be discussed whether this requirement is already covered by the multitude of controlling requirements contained in the framework.

System perspectives: Applying the system perspectives showed on the one hand that the sub-perspectives culture (3.2.3) and behaviour (3.2.2) as well as instruments (3.3.2) and methods (3.3.3) should be separated from each other. Due to the lack of conceptual clarity, the sub-perspectives culture and behaviour as well as instruments and methods have not yet been considered separately. The literature review resulted in some articles, e.g. Stubbs (2013), which cover the system perspective structure (3.1). However, due to the importance of good structuring, the research should focus on this system perspective soon by defining requirements for a successful structure of project controlling. Whereas the sub-perspectives instruments and methods (3.3.2, 3.3.3) are often addressed, the sub-perspectives infrastructure (3.1.3) and skills (3.2.1) are rarely mentioned. Regarding the system perspective people (3.2), the principal-agent approach, which is addressed in some of the articles, is of particular interest, as it has numerous principal-agent relationships in public infrastructure projects (e.g. Flyvbjerg et al. 2009). Finally, it should be mentioned that the system perspective partners and context (3.4) is hardly covered at all. With regard to partners, this is of little surprise since articles on stakeholder management or project organisation were not selected.

4 Conclusion

This article aims at identifying the international research literature on controlling of public infrastructure projects. Due to linguistic challenges, preparatory work was necessary in order to specify search terms as well as to structure and evaluate search results. Therefore, a controlling system framework was developed by specifying the understanding of controlling, by defining initial requirement categories for the controlling of public infrastructure projects and by applying the idea of a controlling

system. Finally, the literature review was performed and selected articles were evaluated. Since the controlling system framework served as a basis to structure the selected articles, initial experiences in theoretically applying the framework were gathered and requirements for adjustment were identified.

Since few articles were selected, it is difficult to identify precise research gaps. However, by assigning the selected articles to the controlling system framework perspectives, at least some research questions were identified. However, since the literature review yielded few relevant results, and with regard to the title of this article, we can conclude that there is not that much about coordination, transparency and anticipation in public infrastructure projects—at least not within the international literature analysed in this article.

Regarding the literature review, search step 2 should be completed and it should be discussed whether the most successful search terms should be generalised beyond search step 2, e.g. using the project type construction project. Furthermore, the journals, which are of special relevance for project management (see chapter 3.1), are not completely included in the searched database (older volumes are missing). Therefore, the literature review could be extended to older volumes as well as to German journals and other sources.

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Workplace Expectations Versus Reality: Are Millennials So Different?



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Abstract For a growing number of employers, understanding the needs and expectations of employees, especially those of Millennial generation, is crucial. The purpose of this research is to determine the gap between expectations and reality in the Latvian job market with a major focus on generational differences and Millennials. The quantitative study is based on empirical data gathered by an online survey ($n = 2010$). A structured questionnaire measures the differences between expectations and reality in respect to five aspects of the work environment (work–life balance, job meaningfulness, salary and transparency of remuneration system, career and growth possibilities, and relationship with colleagues and management). The results highlight significant differences between workplace expectations and reality. In relationship to all examined aspects gaps between expectations and reality for Millennial generation, employees, however, are much smaller than for other generations leading to the conclusion that Millennials more often get what they want. The managerial implications for employers are related to ensuring transparency of HR systems—remuneration, career growth, and improving work–life balance.

Keywords Labor market · Employee expectations · Generations · Millennials · Latvia

1 Introduction

Today's conditions in the workplace are frequently characterized as the worst for the economy since the Great Depression and the hunt for a job becomes extremely difficult for candidates, as well as employers complain that it is impossible to find suitable employees. Companies are having difficulties in attracting new employees, who are ready to stay with the company for a long time; therefore, they experience

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costly recruitment and increasing average cost per employee. From the candidate perspective, the problem is that they are not able to find a position that fits their desires. Talent acquisition and new Millennial generation for organizations is one of the main challenges of the future (Deloitte 2017).

Currently, the labor market is dominated by three generations of employees—Baby Boomers, Generation X, and Millennials (Milligan 2014; Beaman 2012). Research shows that generations have different characteristics which do not simply relate to their stage in life (CIPD 2008). Part of employees called “Millennials” have been very often discussed topic in the last couple of years, especially after Gallup (2016) analytics has paid extra attention to youth at work market. Just the fact that Millennials are the least engaged generation shows the relevance of the statement that expectations of employers and employees do not match. According to Gallup (2016) research Millennials seem to be not understood at work.

Human capital is the most valuable resource in post-industrial society (Kartal et al. 2017); therefore, for a growing number of employers, understanding the needs and expectations of employees, especially Millennial generation, is crucial: attracting talent requires to know what exactly they expect from the employer (Maurer 2017). Moreover, the expectation match is also important to retain employees (Roepe 2017).

According to *Business Dictionary* (2017), expectation is an “average probability of a chance occurrence.” However, *Longman Exams Dictionary* (2006, p. 517) states that expectation in plural has the following meaning: “a feeling or belief about the way something should be or someone should behave.” According to the definitions, for this research, an expectation of employee is a belief about the way a certain job should be and how an employer should treat employees. According to Noe et al. (2016), there are two types of expectations: explicit expectations that we usually see in the job contract and unspoken expectations, many times also called implicit expectations, and referred to as “a psychological contract” (Noe et al. 2016). The psychological contract in contrast to explicit expectations is not formally written on the paper. As noted by Rigoni and Nelson (2016), only half of the employees have been informed and have understood what is expected from them.

Milligan (2014) believes that each generation has different ways or so-called models of how they want to build a career and understanding these models could help employers to attract and work with the employees from different generations. Similarly Roepe (2017) states that employers must adjust to the young employees and HR professionals must update their strategies in order to retain the youth in a company. Younger generations of employees want that expectations are clearly explained and will go to the employer that will give the best clarity of expectations and a clear path of the career. The importance of expectation match is equally important to retain employees (Roepe 2017).

This chapter aims to measure the gap between expectations and realities in the Latvian job market with a major focus on generational differences and Millennials. The chapter answers two major research questions: RQ1: what are the gaps between workplace expectations and reality in five aspects of the work environment—work-life balance, job meaningfulness, salary and transparency of remuneration system,

career and growth possibilities, and relationships between colleagues and management? RQ2: which generation experiences the biggest gap between expectations and reality? This chapter looks at generational differences from a fresh perspective, namely, that it investigates which generation is ready to tolerate a greater difference between expectations and workplace reality. This empirically based look at differences between desired and real work conditions should be useful to managers for understanding the reasons for unrealistic high expectations of potential employees. By understanding the acceptable level of mismatch between expectations and reality in respect to different generations, HR managers can better tailor job offerings. Moreover, as expressed by Twenge and Campbell (2008) organizations and managers who understand various aspects of generational differences can better accommodate differences or exert constructive counterpressure.

2 Generations in Today's Workplace

The generational theory with commonly used generational names—Veterans, Baby Boomers, X, Y, and Z—emerged and developed in the USA in the second half of the twentieth century. Karl Mannheim, a leader in generational research, in 1950 defined that generation is a group of people of similar age who have experienced historically significant events and social changes over a period of time, which became part of the individual's identity and affected the views of the world (Spiegel 2013). As Milligan (2014) has described, there are 4 generations in the current job market: Traditionalists (born 1922–1945), Baby Boomers (born 1946–1964), Generation X (born 1965–1980), and Millennials (born 1981–2000). There is also Generation Z, but this generation is just entering the job market (Ukleja and Espinoza 2016).

Baby Boomers (also called demographic boom generation) still attract researchers because they are a phenomenal generation that has changed a lot in the workplace. As they grew up, they challenged traditional values and earned a reputation for charismatic rebels (Gotsill and Ball 2010). Although the demographic boom generation was by nature rebellious, they still look at work as an adventure, and for them, career and career advancement is an important factor. The term “workaholic” was created to describe this generation (Hobart and Sendek 2014) and a long-term career in one organization is quite typical for them.

Generation X was the first generation to fully question the social contract “one job/one company.” They perceive the work as a mutual agreement—“I work for you, giving you time, energy and effort, but you give me a salary. I don't owe you anything else” (Hobart and Sendek 2014). Their greatest value is the balance in their lives. The Generation X introduced the idea that their private life deserves the same attention and respect as working life (Gotsill and Ball 2010). Representatives of this generation were the first who wanted to take responsibility for their careers and to introduce terms like “professional development,” “career planning,” and “work–life balance.” Representatives of this generation are looking for emotional security; they are informal and independent (Abib-Pech 2013).

The next generation is Millennials, also called Generation Y. Susan Milligan (2014) states that this generation's "needs are so different." According to Roepe (2017), technology has a huge influence on generational differences. They are often called "digital natives" because they have grown up in an information age, a world where technology is a lifestyle. Generation Y does not know everyday life without technology—a portable or stationary computer, mobile phones, the Internet. High-speed technologies have contributed to the situation that Millennials do not accept the word "wait" (Gotsill and Ball 2010; Vaterlaus et al. 2015). This generation does not regard technology only as a means of helping to do more work or ensuring work–life balance; technology is an integral part of their lives. Generation Y is the most educated and most skilled in the labor market; it feels very protected and structured (Ukleja and Espinoza 2016).

Another significant difference between the Millennials and previous generations is the lack of formalities that occur when the Generation Y communicates with senior management (Lipkin and Perrymore 2009). At workplaces, Millennials' behavior can be considered inappropriate because they are fearless and inconspicuous; they freely offer their opinions without taking into account the corporate hierarchy and disregarding generally accepted norms (Erickson 2010; Ukleja and Espinoza 2016). Generation Y has challenged and changed the long-term corporate formality (Lipkin and Perrymore 2009; Caraher 2014). The Millennials want leaders to engage in their professional development. For example, Gallup (2016) research believes that Millennials expect meeting their managers once a week for better performance and higher engagement. Ernst & Young (2015) found they would like to have "opportunities to learn from within."

This generation feels good when doing multiple tasks at the same time and wants to learn new things quickly and take on new challenges (Hobart and Sendek 2014). The Generation Y has high self-esteem because they are told that they can be anything and can achieve whatever they want, regardless of their origin, and they are aware of their strengths (Lipkin 2009). Millennials value diversity, corporate social responsibility, optimism, and involvement in decision making. They have high expectations for their employer and they want direct and fair treatment from their managers (Ukleja and Espinoza 2016). As Bates (2016) mentions, young people have expectations from employers, and they live with a thought "What investments are you making in me?"

Still, Millennials care a lot about the meaningfulness of their jobs. Their survey conducted in the USA shows that students in the age group from 15 to 29 believe that the work should be meaningful, and for them, the sense of giving back or working for society is a key factor in choosing the ideal future employer. Millennials are looking for something "bigger than themselves" in life to feel fulfilled (Bates 2016).

Currently, employees born after 2000, Generation Z is coming into the job market (Bates and Miller 2017). In some sources, the beginning of the Z generation's birth year is not the year 2001, but the year 1995, as the generational boundaries are becoming more and more volatile and more specific, and generations are more characterized by their values than their birth years (Keldsen and Koulooulos

2014). Ryan (2017) believes that Generation Z are the ones born between 1994 and 2009 and that after 2009 the births of the Alpha generation started.

There are fewer members of the Generation Z than the Generation Y because the birth rate in the Western world has decreased rapidly. Generation Z's values and attitudes have been influenced by the experience of the 2007–2008 mortgage crisis, African refugees, and ISIS (Ukleja and Espinoza 2016). This is a generation that has not experienced the events of September 11, 2001, in the USA, and for them, it will only be an event that will be told in history. Generation Z representatives “do not remember the time before the emergence of social media and, in their opinion, social media is not a medium, but a means of communication and learning, a tool of world cognition” (Dorsey 2016, p. 14). Only time will tell what the impact of the Generation Z on the labor market will be. They have a very strong ability to use the latest information technologies and have the ability to think creatively. However, despite this, the Millennials believe that the Generation Z representatives will need a great deal of support to enter the labor market, as their professionalism and personal characteristics (maturity, patience) are not sufficiently developed, but they can be learned through learning and through experience (Deloitte 2017).

To summarize, the major differences between generations fall into one of the five categories: work–life balance, job meaningfulness, salary and transparency of remuneration system, career and growth possibilities, and attitude toward colleagues and management. According to the theory, the following relationship is predicted:

Hypothesis 1 : *Millennial generation is ready to tolerate the smallest gap between what they expect from the workplace and the real situation.*

3 Methodology

The empirical setting for this study is EU member state Latvia. In December 2017, the number of permanent residents of Latvia was 1.93 million, which is 37.8 thousand less than it was in January 2016 (LR Central Statistical Bureau 2018). During the last 10 years, the number of inhabitants has decreased by 277.7 thousand, or by 12.5%; moreover, due to an aging population, the number of the employable population has decreased by 17.5. In 2016, 31.88% of the economically active population were representatives of the Y generation, 46.85% of the X generation, and the fifth or 21.26% of the Baby Boomers generation.

In the situation with decreasing population, still, the Central Statistical Bureau (CSB) shows that in the third quarter of 2018 Latvian unemployment rate constituted 7.0%; moreover, youth unemployment rate constituted 11.0%. Unemployment reduces people's life satisfaction (Aysan and Aysan 2017) and for almost a decade Latvian unemployment rate exceeds European Union Average (LR Central Statistical Bureau 2018).

The situation in the Latvian labor market and its future prospects are determined not only by the abovementioned population structures and demographic indicators,

but also by the high migration from Latvia to other European Union countries, the imbalance of labor demand and supply (mismatch of skills and education), and the high proportion of employees with comparatively low pay rates. According to the forecasts of several Latvian economists, by 2030, the major changes in labor demand are expected in the service sector, which is also in line with global trends. The economists point to a growing demand for managers and different professionals who need appropriate education, as well as for the professions and skilled workers (Kassalis et al. 2014).

3.1 Respondents

The research is based on quantitative methodology. Data were gathered by an online survey in the spring of 2018, and the total number of respondents was 2010. For the purpose of this research, respondents born before 1964 were assigned to Baby Boomers ($n = 198$), those born between 1965 and 1980 belong to Generation Y ($n = 764$), Millennials are born between 1981 and 2000 ($n = 1051$), and all respondents born after 2001 belong to the Generation Z ($n = 33$). Thus, 50% of the sample is represented by Millennials, 38% are Generation X, 10% are Baby Boomers, and only 2% are representing the Generation Z. The most important sample demographic characteristics are presented in Table 1.

Respondents representing Generation Z were excluded from the analysis of factor importance and gaps between expectations and reality because only five of them were employed and they were not able to evaluate the workplace realities yet.

3.2 Questionnaire Development

The questionnaire included 11 demographic type questions, a section measuring the perception of importance of five workplace factors, and factor blocks measuring

Table 1 Respondent profiles

Gender	No. of resp.	Number of jobs	No. of resp.	Tenure in current organization	No. of resp.
Male	627	1 job	219	Up to 3 months	141
Female	1383	2 jobs	381	From 3 months to 1 year	214
		3–5 jobs	1071	1 to 5 years	761
		6 and more jobs	313	6 to 10 years	373
		Not employed	26	11 to 20 years	387
				More than 20 years	134

Source: Survey results and own calculations

Table 2 Descriptive statistics

Workplace factor	No. of items	Cronbach’s alpha		Expectations		Reality	
		expectations (n = 2010)	Reality (n = 1778)	Mean	Std. deviation	Mean	Std. deviation
Work–life balance	9	0.70	0.73	3.24	0.38	2.69	0.52
Job meaningfulness	4	0.69	0.67	3.32	0.40	2.99	0.44
Salary and transparency of remuneration system	6	0.72	0.68	3.43	0.40	2.65	0.60
Career and growth possibilities	4	0.56	0.71	3.42	0.38	2.84	0.61
Colleagues and management	5	0.71	0.81	3.26	0.44	2.94	0.59

Source: Survey results and own calculations

expectations and reality (2 × 29 items) for five workplace factors: work–life balance, job meaningfulness, salary and transparency of remuneration system, career and growth possibilities, and relationship with colleagues and management.

The perception of the importance at workplace factors sample statement is “Job for me is an opportunity to prove myself,” and respondents were asked to indicate their level of agreement with the statement in four-point Likert type scale. For measuring workplace expectations, respondents were asked to indicate the level of importance of the factor in four-point Likert type scale where 1 was assigned to “not at all important,” 2 to “of little importance,” 3 to “moderately important,” and 4 to “absolutely essential.” For example, a statement “Possibility to learn at the workplace” measured respondents’ perception of the importance of growth possibilities.

After expectation section respondents were asked to evaluate their current employment experience and only those who were employed proceeded to the final section. The number of respondents employed at the moment of the survey was 1778, 178 of them were Baby Boomers, 715 Generation Y representatives, 880 Millennials, and only 5 belonged to Generation Z. Only they completed the final section of the survey. In this section, they had to state their level of agreement with the statements about their current job in four-point Likert type scale where 1 was assigned to “strongly disagree,” 2 to “disagree,” 3 to “agree,” and 4 to “strongly agree.” The factors measured in expectations part and in workplace reality part were identical, for example, in the expectations part statement “fair remuneration principles,” and in the reality part, statement “remuneration principles in my organization are fair to everyone.”

Before analysis, Cronbach’s alpha coefficients were calculated for all workplace factor blocks (see Table 2). All factor blocks show acceptable internal consistency reliability for expectations and reality, except that expectation scale regarding career

and growth possibilities shows alpha below 0.7. This can be explained by the fact that the perception of the importance of this factor still is a personal factor.

4 Analysis and Discussion

Mean values in Table 2 show that for all workplace factors expectations exceed reality. Paired sample t-test was used to evaluate the differences between expectations and reality, and it showed that in all five workplace factors expectations appeared to be significantly higher than reality (t ranged between 21.42 and 44.82; all $p < 0.001$). Differences in percent were the following: salary and transparency of remuneration system expectations exceed reality by 23%; career and growth possibilities and work–life balance expectations are 17% higher than reality, whereas job meaningfulness and relationships with colleagues and management appeared to be evaluated only 10% lower than expected values.

Figure 1 presents the result of the first section of the questionnaire—an evaluation of the importance of five workplace factors according to the respondents of three generations.

Kruskal–Wallis test showed that differences between generations are statistically significant for an opportunity to prove oneself (Chi-square 12.73**), the importance of others’ opinion (Chi-square 12.74**), the presence of new technologies at the workplace (Chi-square 122.96***), and the importance of work being interesting (Chi-square 23.21***). Interestingly, differences between appreciation of teamwork appeared not significant (Chi-square 6.46; $p > 0.05$). Thus, teamwork is an equally important part of work life for all generations of respondents. According to Chi-Square test, generation has a small to medium effect on importance of the

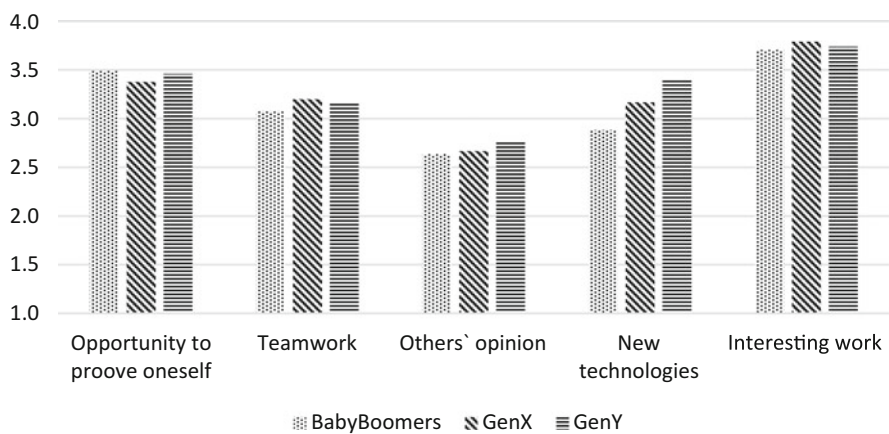


Fig. 1 Generational perception of workplace factor importance. (Source: Survey results and own calculations)

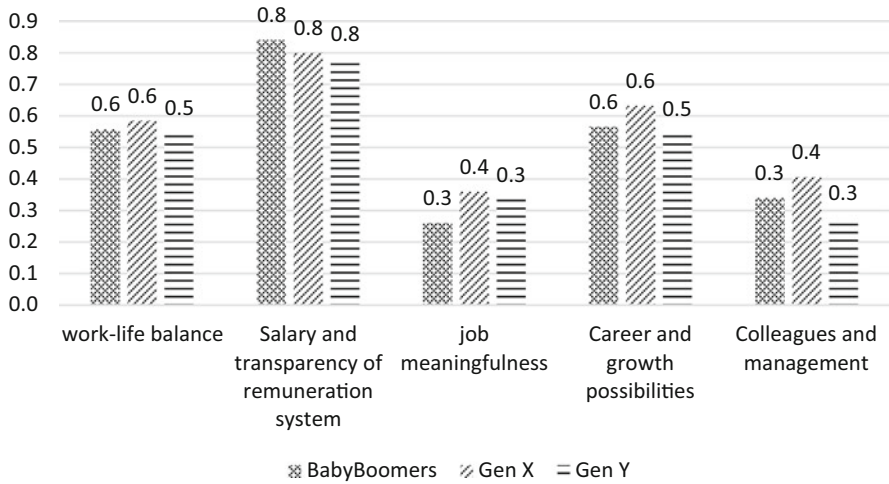


Fig. 2 Gaps between expectations and reality for workplace factors ($n = 1773$). (Source: Survey results and own calculations)

factors (Pearson Chi-square = 61,108***, Phi = 0,185***, and Cramer’s V = 0,107***). This finding is consistent with Macky, Gardner, and Forsyth, who found that differences in attitudes toward work and careers between generations exist, but effect size tends not to be large (Macky et al. 2008).

All respondents evaluated interesting work and an opportunity to prove themselves as more important factors. Similarly, Beaman (2012) states that Millennials are concerned with self-fulfillment. All generations showed low need for social approval; however, Millennials evaluated this aspect higher than others. This finding contradicts Twenge and Campbell (2008) who found that in the USA generation Y has a lower need for social approval.

Views on technology also vary across generations (Beaman 2012) and, as seen in Fig. 1, Millennials consider working with technologies more important than other generations. This result proves the statement that generational differences are both technological and psychological (Twenge and Campbell 2008).

Further gaps between expectations and reality (average difference between all five workplace factors) were calculated and differences assessed between generational cohorts (see Fig. 2).

Average gaps between expectations and reality were assessed for differences between generations. Kruskal–Wallis test showed that differences between generations are not significant for work–life balance (Chi-square 5.47; $p > 0.05$), transparency of remuneration system (Chi-square 4.01; $p > 0.05$), and job meaningfulness (Chi-square 4.90; $p > 0.05$). Whereas for career growth possibilities and relationships with colleagues and management differences appeared to be statistically significant (Chi-square 5.9.89** and Chi-square 23.15***). For both factors, Millennials indicated the smallest gap. This result is in line with CIPD

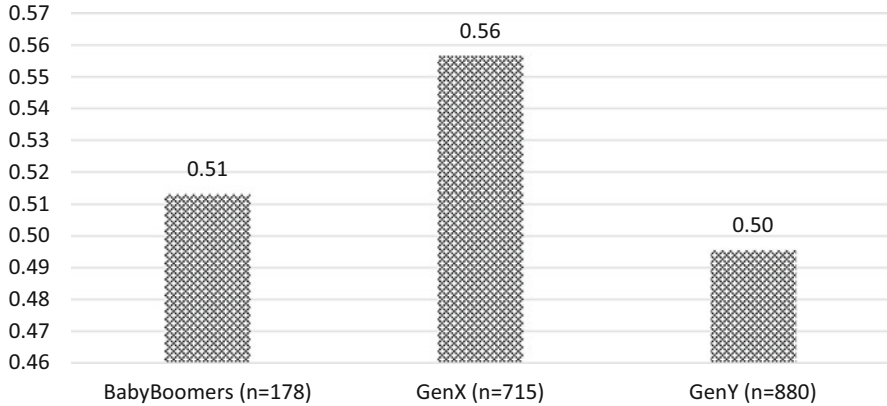


Fig. 3 Total average gap between expectations and reality for workplace factors. (Source: Survey results and own calculations)

(2008) which stated Millennials will be more engaged in work if they have access to personal development.

Similarly, CIPD (2008) indicated that Millennials want work–life balance and over half feel they can achieve it. This research shows that in Latvia Millennials are the ones who experience the smallest gap between expectations and reality in respect to work–life balance; however, the difference from other generations is not statistically significant.

Finally, the total average gap for all five workplace factors was calculated and differences between generations unanalyzed (see Fig. 3). Total gap differences appeared to be statistically significant, as indicated by Kruskal–Wallis test (Chi-square 9.194; $p = 0.027$).

The findings show that Generation X is the one who is experiencing the biggest discrepancy between expectations and reality, whereas Millennials are ready to accept the smallest difference. Thus, the results are in favor of the hypothesis that *Millennial generation is ready to tolerate the smallest gap between what they expect from the workplace and the real situation* and are in agreement with what was found by other researchers that Millennials “want everything to happen instantly” (Kamau et al. 2014, p. 38).

5 Conclusion

The aim of this research was to measure the gaps between expectations and reality in the Latvian job market with a major focus on generational differences and Millennials. The results of the empirical assessment show that significant gaps exist between workplace expectations and reality—especially related to transparency of remuneration system, career and growth possibilities, and work–life balance.

Generation X experience the biggest perceived gap between expectations and reality in the Latvian job market, whereas Millennials are the generation with the smallest gap. Thus, it can be concluded that Millennials are not ready for a compromise, and, if they do not get what they want, they will sooner leave the country and search for more appropriate job elsewhere.

This research has certain managerial implications. While it is important to avoid generalizations, still generational theory proved to be helpful for HR professionals in Latvia. Understanding employee expectations may help to attract and retain a workforce. As stated by CIPD (2008), by understanding what motivates employees, an organization can develop a compelling value proposition to engage and reward them. For managers, it is important to understand that readiness to tolerate the gap between expectations and reality decreases: Gen X is ready to tolerate the largest gap between expectations and reality, whereas for Gen Y the acceptable gap is significantly smaller. To attract and keep talent, Latvian organizations should firstly ensure transparency and fairness of remuneration systems and secondly should invest in learning and growth.

This research has certain limitations which are leading to future research. First, the results are context limited leading to limited generalizability of findings. Further analysis could be done in other contexts. The results are based on subjective opinions of the respondents what might lead to common method bias. Furthermore, differences within generations between could be assessed. Future research should include more respondents from generation Z, which is currently entering job market and is of interest for researchers and practitioners.

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Gamification in Business: A Review of the Studies



Yaprak Kalafatoğlu

Abstract This chapter presents a systematic review of the literature about gamification studies in organizational behavior and human resources management that have been done so far. Although gamification became popular in the last decade, it is questionable whether it meets business goals or not. It is believed that better designs can be originated from more scientific research. The aim of this review is to gain a better understanding of gamification studies regarding organizational behavior and human resources management. A systematic review of the literature was done and 28 studies were included in this chapter. This chapter indicates that gamification is studied in several fields including personnel selection, training, and performance management. It is also used as a trigger for employee well-being. Despite the variety of business fields, the number of studies is low, which indicates a promising avenue for additional research in the future.

Keywords Gamification · Games · Organizational behavior review

1 Introduction

Although gamification is a relatively new concept which became popular in the last decade, using games for achieving a target is familiar to us. For example, most children dislike broccoli, and their caregivers come up with creative solutions to make them eat. One successful way is to combine broccoli with a tasty cheese sauce and add a little game such as “the plane is landing.” Similarly, the combination of a game and positive reinforcement is the factor that lies behind gamification (Zichermann and Cunningham 2011). Gamification is “the use of game design elements in non-game contexts” (Deterding et al. 2011, p. 9). The aim of gamification is to do routine tasks more engagingly by utilizing game characteristics

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such as challenge, competition, fun, and social rewards (Sarangi and Shah 2015). In other words, gamification makes a boring task more entertaining.

One of the most well-known models for describing the elements of gamification is the MDA (Mechanics, Dynamics, Aesthetics) framework. Mechanics include the working ingredients of the game such as points, levels, and leaderboards. These components guide the user's actions. When players interact with game mechanics, it creates dynamics. The aesthetics of the system means the feelings of the player in the course of interaction (Zichermann and Cunningham 2011).

Although gamification involves games, there is an important difference from games. In gamification, there is a target such as organizational effectiveness, and game mechanics are utilized for achieving it; therefore, gamification does not mean fun games people play in the workplace (Singh 2012). Also, there are some pre-requisites of gamification for achieving the particular target, because it may not guarantee success if the gamified product/service is inadequate or there is a lack of meaning in the gamified application. For example, Zichermann and Cunningham (2011) claimed that gamification adds incremental value to a product or service that is already good. This is achieved with game mechanics that permit the experience as simple, rewarding, and fun. Likewise, another study emphasized the role of aesthetic experience on individuals' continual intention to use a gamified information system. Aesthetic experience means a sensation of meaning and understanding of the essence of the experience. Results indicate that the effect of an aesthetic experience is stronger than flow experience (i.e., feeling fun and hedonistic enjoyment). This study can interpret why many entertaining gamification applications can fail if they do not have this understanding (Suh et al. 2017).

Today, gamification is used in several areas including health promotion and prevention (Marston and Hall 2016), business, education, social settings (Du Vernet et al. 2016), human-computer interaction (Marache-Francisco and Brangier 2015), and enterprise information systems (Swacha 2016). According to Munson (2013), gamification was ranked 5th in workplace trends for 2014 and a continued interest was expected as organizations tried to engage employees and find alternative solutions to measure skills and to gain interest from applicants. Gamification is a trending topic in organizations for several reasons. According to Mollick and Werbach (2015), gamification decreases boredom and improves satisfaction, boosting performance and encouraging work, and it is also linked to other major human resources functions. Another researcher analyzed three features of gamification: engagement/performance, fairness/freedom, and efficiency/purpose. Gamification ensures engagement as a way of keeping people from routines with the many activities it presents. Giving a mission and measuring the performance of the users provides fairness and a perception of freedom. As players try to find out the best solution, games may be efficient activities (Cassone 2016).

In addition, gamification may be useful particularly to Millennials. Although gamification may gain interest in all age groups, when it is combined with technology, Millennials may especially benefit more as they are used to video games. A recent study shows that the average video gamer is 34 years old and 39% of game purchasers are women while 61% are men (Entertainment Software Association,

2018). Another study shows that Millennials pursue immediate gratification, public recognition, curiosity, social connectedness, independence, and transparency (Bhattacharyya et al. 2018). Gamification uses game design elements in other contexts (Deterding et al. 2011) like the workplace, and if it is integrated well for the needs of Millennials, it may successfully accomplish the goals of organizations. Fulfilling the needs of these groups is important as nearly 75 percent of the global workforce will consist of Millennials by 2025 (Twaronite 2015).

The aim of this chapter is to gain a better understanding of gamification studies regarding organizational behavior and human resources management that have been done so far. Gamification benefits organizational behavior research as it is combined with concepts such as employee engagement and well-being. Another closer field in which gamification is used is human resources management in such divisions as recruitment, on-boarding, learning and education, training, performance management, talent and retention, and occupational health and safety (Herger 2014). One recent conference paper (Ferreira et al. 2017) examined the application of gamification in the workplace. Their review consists of 35 articles gathered from the Scopus and Web of Science databases that were done between 2011 and 2016. Their findings identify four theoretical dimensions that are related to gamification: the HRM system, positive psychological dimensions, organizational results, and critical approach to gamification. They argue that using small samples and having no control group led to a threat to validity in many studies. They also criticized the disconnection between research and practice and suggested further applied research about gamification and work. Our study differs from Ferreira et al.'s in the databases that are used, the difference in exclusion criteria, the inclusion of organizational behavior research, and the time span.

The research questions in this review are as follows: RQ1: What human resources management and organizational behavior domains are studied? RQ2: How is gamification being used in human resources management and organizational behavior fields? RQ3: What kinds of gamification mechanics were used?

This chapter includes six sections. The second section explains the methodology of the study. The third section examines the research questions in the literature review. The fourth section discusses the inferences based on the research. The fifth section interprets the practical implications and future directions of the research. Lastly, the final section concludes the paper.

2 Method

2.1 Analysis

A systematic review of the literature was done based on the suggestions of the preferred reporting items for systematic review and meta-analysis protocol (PRISMA-P) checklist (Moher et al. 2015). Some high-quality studies were also examined for a systematic review (Johnson et al. 2016; Mora et al. 2017).

Gamification was defined according to the aforementioned definition by Deterding et al. (2011).

2.2 Database Search

The literature was searched on July 2018 in the electronic databases shown in Table 1. For review, “gamification” was entered as a keyword and was searched in titles, subject terms, and full texts with “human resources management” and “organizational behavior” also as keywords. At the beginning of this stage, 262 studies were identified. The application of the further above criteria resulted in 28 studies.

2.3 Inclusion and Exclusion Criteria

The scope of this search is based on three criteria. First, the review consists of conceptual papers, conference proceedings, and research articles published in peer-reviewed academic journals in English. Second, since this study aims to investigate gamification in human resources management and organizational behavior domains, studies that were done in other domains (such as education and health) were excluded. With this aim, only management and psychology journals were included. Last, due to generalizability concerns (Silverman 1977), using student samples was an exclusion criterion.

3 Literature Review

After the inclusion and exclusion criteria were met, 14 empirical and 14 conceptual studies were considered as eligible for this paper (see Tables 2 and 3 for the results of the review). The review of the literature resulted in eight research areas in human

Table 1 Results from selected databases

Database	Peer-reviewed papers	Selected papers
ScienceDirect	103	1
Ebsco Host	41	6
ProQuest	20	5
Scopus	23	2
Web of Science	75	7
Other ^a		7

Source: Developed by the author

^aResearchGate and Google Scholar

Table 2 Empirical studies that examined gamification

Publication	Field	Sample/Data	Design	Gamification mechanics	Tools	Outcomes
Mekler et al. (2017)	Motivation and performance	273 Adults	Experimental	Points, leader-board, levels	Based on self-determination theory, the effects of gamification mechanics on need satisfaction, intrinsic motivation, and performance were measured.	Gamification strategies improved quantitative performance but has no effect on intrinsic motivation, need satisfaction, and the quality of performance.
Liu et al. (2018)	Job motivation, satisfaction, and performance	60 Computer numerical control (CNC) Machine operators	Experimental	Points, badges, achievements, leader boards	A smart phone-based application was designed.	Smartphone-based gamified job design increased participants' job motivation, job satisfaction, and operational performance.
Scheiner (2015)	Motivation	2 panel studies (N = 27, 58)	Longitudinal	Points, level, story virtual identity, exchange, badges	Participants involved in the social idea competition EVOKE. Then they measured the motivational effect of each game mechanics	Social points and exchange were found as most favorable due to automatic provision of feedback, the feeling of social belonging, the feeling of being needed, and the possibility of forging bonds with other participants.
Katzlinger (2017)	Recruitment	Online self-assessment tools of 14 enterprises	Qualitative	-	Gamification elements and online games in the e-recruiting process were examined.	An analysis of big enterprises with a turnover more than 1 billion euro showed that gamified contexts are

(continued)

Table 2 (continued)

Publication	Field	Sample/Data	Design	Gamification mechanics	Tools	Outcomes
Garcia et al. (2017)	Training	Managers working in an international company	Case study	Avatar, points, PvP, badge, ranking	A program was developed which consists of two initial on-site sessions, a gamified online training design with individual and group challenges, and two closing on-site sessions.	used to inform and provide the daily routine about the job tasks to young applicants. Positive feedback was gathered from the participants and the program was found beneficial in terms of competency development (proactivity and innovation) as well as transference of previous learning on game.
Baxter et al. (2017)	Training	Bank employees	Field study	–	A gamified training program from True Office (the provider company). An anticorruption training was gamified.	Participants preferred gamified training over non-gamified ones. Experience moderated the relationship between gamification and knowledge such that only less-experienced participants increased their performance.
Ergle D. (2016)	Employee engagement	Employees in airBaltic Corporation	Case study	–	Forecaster tool was designed for increasing employee engagement by airBaltic Corporation.	Based on the literature review, eight steps were suggested to develop an effective business game, specifically Forecaster tool.

Cheng (2017)	Well-being	Participants (aged 16–35)	Quantitative (Project)	–	An application named MindMax has been developed to improve well-being. The system includes sport and video games.	The research continues with naturalistic evaluation trial.
Araujo and Pestana (2017)	Well-being	Blue-collar and white-collar workers	Case study	Point, competition	Active@work project was developed to improve employee well-being and skills management.	Pilot studies were done in Spain and Belgium. An improvement is expected in terms of cognitive, collaborative, and skill development dimensions.
Patricio, R. (2017)	Innovation	Innovation consultants and IT software team members and students	Qualitative	Rewards (Point)	A board game called IdeaChef that uses cooking metaphors was designed for providing teams to transform their ideas to prototypes	The tool was found successful by innovation employees and by the students who played it in their Project Management and Business Planning Course
Dulskaia et al. (2017)	Communication	Board of directors, middle managers, and employees in an electrical equipment company	Case study	audio video pieces Decalogue of appropriate behaviors A game of cards	The Robatiempos project for making face-to-face meetings more efficient.	3 workshops were done. Positive feedback was received.
Piras et al. (2017)	Communication	Full professors at a university	Qualitative case study	–	A requirements engineering framework and an organizational behavior framework were compared in a meeting scheduling case study	The authors suggest to integrate two frameworks into one by combining elements of them.

(continued)

Table 2 (continued)

Publication	Field	Sample/Data	Design	Gamification mechanics	Tools	Outcomes
Suh et al. (2017)	The role of flow experience (FE) and an aesthetic experience (AE) on continuance intention to use a gamified IS	178 employees of a global consulting company that applied gamification ideas in an IS	Cross-sectional	Points, levels, badges, trophies, leaderboards	A gamified information system was used (from Jive Software's enterprise applications)	Findings revealed that both AE and FE positively influence intention to use, but the effect of AE is stronger than FE.
Vinichenko et al. (2016)	Labor processes and HR management	Employees from different organizations and students (age: 22–50)	Quantitative	–	Main issues about gamification in Russia were determined with survey method.	Participants mentioned motivation and creating a positive organizational climate as primary aims. Creative top management, young team, and creative activity of the company are required for gamification.

Source: Developed by the author based on the literature review

Table 3 Conceptual papers that examined gamification

Publications	Scope of the study	Conclusion
Armstrong and Landers (2018)	A definition about gamification in employee training to increase effectiveness including a training redesign process.	Suggested redesign process starts with doing a needs assessment, utilizing theory to develop an initial training design, applying the training and performing a training evaluation, redesigning and reevaluating if needed.
Bhattacharyya et al. (2018)	A discussion about Nicholson’s strategies for meaningful gamification (2012) to increase Gen Y’s engagement at work.	Gen Y’s engagement at work may be improved by play and choice (for sense of autonomy), exposition (sense for curiosity), information (need for transparency), engagement (need for social connectedness and recognition), and reflection (search for meaning).
Cardador et al. (2017)	A theory of work gamification for performance management.	Gamification is suggested to improve performance by increasing the efficiency and work motivation by providing comparative, fast, and visual feedback on performance and making work more fun. The application (length and type) and the characteristics of the users (type a personality, success-oriented, and competitiveness) have a moderating effect in this relationship
Chamorro-Premuzic et al. (2017)	Gamification has been proposed as one of the innovations that can be placed in the personnel selection system in the HR field.	Gamification may be placed in personnel selection tools as it provides information about the person, ensures person-job fit, and gives an idea about the applicants intelligence.
Ergle D. (2015)	A description and an analysis about Forecaster game	Forecaster game was introduced by airBaltic corporation to increase employee engagement and internal communication and improve the decision-making process. This paper analyzed the theoretical basis and the practical outcomes of Forecaster.
Johnson et al. (2016)	The literature review about gamification in health and well-being	The results of the 19 articles that provide evidence of effectiveness were examined. In general, these studies are based on self-determination theory and intrinsic/extrinsic motivation.
Kumar and Raghavendran (2015)	Description of Maverick contest that Deloitte’s US India Offices use which utilize gamification	Maverick Contest became successful to increase employee engagement and innovation and it transformed organizational culture.

(continued)

Table 3 (continued)

Publications	Scope of the study	Conclusion
Marlow et al. (2016)	The review of the game-based training	A conceptualization was done which links the game attributes (e.g., action language, assessment) and teamwork competencies (coordination, communication, cooperation, cognition)
Oravec (2015)	The analysis of the critiques about gamification approaches in workplace was done. Also, problems due to multigamification such as cognitive overload were examined.	Some of the criticisms are about gamification's harmful effects on employee well-being, ignoring psychological needs and doubts related to data collection. Game developers need to pay attention to explore and design games depending on the context and they need to solve intergame compatibility, theme interaction, synergy, and participant overload
Robson et al. (2016)	The development of a player typology and case examples about engagement through gamification.	The 2*2 typology consists of player orientation and player competitiveness. Successful and failed case examples were given about customer and employee engagement through gamification in which the fit between game mechanics and player types was emphasized
Sarangi and Shah (2015)	A conceptual model to increase employee engagement	The theory states that game elements and game mechanics influence three principles of user experience, perception, situational affordances, and interactional context which in turn improves employee engagement
Trees (2015)	The examination of the role of enterprise social networking and gamification on Millennials engagement and retention.	Gamification provides an environment to Millennials which focuses on teamwork, social learning, and feedback. It has a motivational value only if organizational strategies and employee goals are linked with gamified systems.
Vardarlier and İnan (2017)	A research proposal to increase performance of sales staff with gamification.	Game dynamics are suggested to be combined with the analysis of the player profiles and determination of motivational sources. Six-step gamification model was proposed for increasing sales performance.
Wozniak (2015)	The development of a typology which includes four generations of online recruitment.	Gamification can be used in all levels of e-recruitment process for preselection and selection and improve the image of the company.

Source: Developed by the author based on the literature review

resources management and organizational behavior fields. In this section, each field will be discussed with empirical results and conceptual definitions, respectively.

3.1 Motivation and Performance

Gamification for job performance and motivation was studied in five papers (three empirical, two conceptual). One study measured the effects of points, levels, and leaderboards on need satisfaction, intrinsic motivation, and performance in an experimental setting. Based on the self-determination theory framework (Ryan and Deci 2000), it was expected that gamification elements may improve intrinsic motivation. Although gamification strategies increased quantitative performance, they showed no effect on intrinsic motivation, need satisfaction, and the quality of performance. Therefore, it was interpreted that gamification elements may work as extrinsic motivators (Mekler et al. 2017).

A study conducted by Liu Huang and Zhang (2018) combined gamification with smartphone apps. A gamified job design framework was suggested. Gamified jobs were divided into tasks based on five core job dimensions that job characteristics theory lists: skill variety, task identity, task significance, autonomy, and feedback. This was called “smartphone based gamified job design” (SGJD). Results showed that using SGJD increases employees’ job motivation, job satisfaction, and operational performance (Liu et al. 2018).

A longitudinal study (Scheiner 2015) assessed the motivational value of game mechanics in an idea competition using game points, social points, level, story virtual identity, exchange, and badges. Social points and exchange were found as most favorable. The authors claimed that this is due to getting automatic feedback, the feeling of belonging to a group, and establishing a bond with other participants.

The conceptual papers in this section are about theory development and research proposal. A theory of work gamification was developed for performance management. Gamification is suggested to improve performance and increase efficiency and motivation by providing comparative, fast, and visual feedback on performance and making work more fun (Cardador et al. 2017). Lastly, one study proposed gamification for increasing performance in sales jobs. It is suggested that game dynamics can be combined with the analysis of the players’ profiles and determination of motivational sources (Vardarlier and İnan 2017).

3.2 Job Recruitment and Personnel Selection

One empirical and two conceptual papers are included in the job recruitment and personnel selection. A qualitative analysis was done among big enterprises (e.g., Lufthansa, Unilever, DHL) to study the utilization of gamification elements and online games in e-recruitment processes. It was seen that the target group was young

people. Self-assessment simulations were done, and these gave information to the applicants and provided an opportunity to understand the daily routine of the job. Faster feedback loops, clear targets and rules, addictive background stories, and challenging solvable tasks are the gamification elements that were used in the e-recruitment process (Katzlinger 2017).

Gamification was proposed as one of the innovations that can be placed in the personnel selection system in the HR field. Organizational psychologists are said to consider game-based assessments for four reasons. First, role-play games are similar to the actual context in the workplace. Second, game-based assessments facilitate finding the correct person for the job as it increases the possibility for employees to work in such jobs and gives intrinsic motivation. Third, there is a similarity between the mental abilities to be successful at a video game and those related to cognitive ability. Last, job applicants favor playing games (Chamorro-Premuzic et al. 2017).

A typology was created by Wozniak (2015) which includes four generations of online recruitment (Web 1.0, Web 2.0, Web 3.0, Web 4.0). E-recruitment has been used to decrease costs, provide easy access to applicants, and attract many applicants at once. The use of games and gamification was explained for each level of the typology. It was suggested to combine gamification into e-recruitment tools because it may make the recruitment process cheaper and more attractive and ensure socializing activities for applicants (Wozniak 2015).

3.3 Training and Evaluation

According to Mollick and Rothbard (2014), the aim of gamification in an educational context is to develop outcomes with an entertaining learning experience compared to traditional learning methods. Two empirical and two conceptual papers were found about gamification in this field. A case study found gamification for the competency development of managers to be beneficial in terms of the proactivity and innovation of the managers as well as transference of previous learning from the game (Garcia et al. 2017).

Baxter et al. (2017) examined the effects of gamification on anticorruption training among bank employees. It was seen that employees preferred gamified training to classical training methods; however, gamification led to increased knowledge acquisition only for less-experienced employees. The authors suggest that this difference may be due to the low motivation of experienced employees which results in low attention spans. Also, as experience is positively related to age, they may be unfamiliar with the gamified context, which could decrease the efficiency of the game (Baxter et al. 2017).

Armstrong and Landers (2018) defined and explained the underlying reasons for the gamification of training, reviewed the studies about gamification's effectiveness, and suggested a step-by-step training redesign process. It suggested that a redesign process starts with doing a needs assessment, utilizing theory to develop an initial

training design, applying the training, performing a training evaluation, and redesigning and reevaluating it if needed.

Marlow et al. (2016) reviewed the literature about the application of a game-based training which follows the trend of gamification in teamwork. The analysis level (the need for more team-level studies), study design (using student samples in lab settings), and outcome type (measuring only learning for training evaluation) were mentioned as the weaknesses of the majority of the studies.

3.4 Employee Engagement

Six conceptual papers and one empirical paper were found regarding employee engagement. Ergle (2015) explored the “Forecaster” game which was designed for increasing employee engagement and commitment at airBaltic. The aim of this game is to involve the employees in the decision-making process of the organization. Employees have virtual money, and depending on their idea, they either buy or sell the shares of a project. Some of the ideas behind the game are to increase communication and to find the best decisions for the company so as to minimize money loss due to poor projects. A follow-up study showed that most of the employees have positive attitudes toward “Forecaster” as they had more information about the company and became more engaged. Employee commitment also increased from the game (Ergle 2016).

Sarangi and Shah (2015) claimed that gamification may allow organizations to have more engaged employees. A conceptual model was suggested to increase employee engagement with gamification. The model involves five components: game elements, game mechanics, perception, situational affordances, and interactional context. Game elements refer to badges, leaderboards, levels, and rewards. Game mechanics are the rules of the game and explain the process. Perception represents how participants comprehend the gamified process. Situational affordances refer to the extent to which the game mechanics and game elements are related to the gamified context. The interactional context is the requirements of the organizational context. This theory states that game elements and game mechanics influence three principles of user experience (perception, situational affordance, and interactional context) which in turn improves employee engagement (Sarangi and Shah 2015).

Robson et al. (2016) emphasized the relationship between game mechanics and player types by forming a player typology. The 2*2 typology they created consists of player orientation and player competitiveness. Successful and failed case examples were given about customer and employee engagement through gamification.

Kumar and Raghavendran (2015) described the “Maverick Contest” that Deloitte’s US India offices use which utilizes gamification. The “Maverick Contest” became successful in increasing employee engagement and innovation, and it transformed their organizational culture.

The last two studies in this section concerned Millennials specifically. Gamification is suggested as a way to increase engagement and retention of Millennials. For example, in Accenture, game dynamics are used in a collaboration program and top collaborators are given monetary awards, recognition letters, and badges. In Wipro (an IT consulting and outsourcing firm), knowledge sharing activities are gamified. Employees with the highest scores are awarded with small prizes. Trees (2015) argues that the motivational value of gamification depends on whether organizational strategies and employee goals are met or not. Millennials' engagement at work may be improved with five strategies that were previously suggested by Nicholson (2012) for meaningful gamification. First, play and choice assure a sense of autonomy. Second, exposition meets a sense of curiosity as stories (e.g., "Zombie Run") are used to encourage participation (running). Third, information like graphical displays saturates the need for transparency. Fourth, engagement provides a need for social connectedness and recognition by using chat spaces and discussion forums. Last, reflection in which the employee thinks about the whole game process ensures the search for meaning (Bhattacharyya et al. 2018).

3.5 Health and Well-Being

A systematic review was done about gamification for health and well-being. 19 articles were found in which self-determination theory and intrinsic/extrinsic motivation were used to discuss health gamification. 59% of them showed positive results and 41% showed mixed or neutral effects. Most of the studies measured behavioral outcomes, but cognitive results were absent. The low quality of research, small number of studies, and the fact that long-term effects of gamified products were not measured showed that gamification in health is a novel concept (Johnson et al. 2016).

3.6 Communication

Two studies used gamification in the communication field for time management and meeting scheduling. Dulaskaia et al. (2017) examined how face-to-face meetings can be made more efficient. The "Robatiempos" (which refers to time stealers) project was designed to raise awareness about time management. The project received positive feedback from the board of directors, middle managers, and employees in an electrical equipment company in which it was used.

Piras et al. (2017) compared organizational behavior (the Motivational Antecedents Framework) and requirements engineering frameworks (Agon) to ensure gamification solutions for software acceptance. The comparison was based on a case study in which a Meeting Scheduler Exemplar adapted from Doodle was gamified for full professors at a university. As two frameworks are strengths and

weaknesses, Piras et al. (2017) suggest integrating them for better gamified solutions.

3.7 Other Variables

Two studies are categorized as “other,” which are about the use of gamification in innovation, labor processes, and HR management. In Patricio’s (2017) study, a board game called “IdeaChef” that uses cooking metaphors was designed for allowing teams to transform their ideas into prototypes. The tool was found to be successful by the innovation employees and by the students who played it in their “Project Management and Business Planning” course. Vinichenko et al. (2016) examined the views of Russian employees regarding gamification in labor processes and HR management. The participants claimed that gamification is used primarily for increasing motivation and assuring a positive organizational climate. Creative top management, young teams, and other creative teams’ activity in the company were suggested to increase the efficiency of gamification.

3.8 Research in Progress

Lastly, two studies explained the process of their research in progress. Cheng (2017) examined an application named “MindMax” that is being developed to improve well-being (Cheng 2017). Araujo and Pestana (2017) explored the “Active@work” project which was designed to improve white-collar and blue-collar employees’ well-being and skills management.

4 Discussion

This review shows the gamification studies that were done in the human resources management and organizational behavior fields between the years 2015 and 2018. A comprehensive analysis of how gamification is embraced was done. In this section, the responses to the research questions will be discussed.

Regarding RQ1, the topics were studied. The review of the literature on gamification revealed that the studied domains are motivation and performance, job recruitment and personnel selection, training and evaluation, employee engagement, health and well-being, communication, and other related fields like innovation and labor processes. In each field, it was seen that few studies were done, which demonstrates the requirement of more research. Also, some fields which may be fruitful for gamification were not even covered, such as leadership, creativity at work, and organizational citizenship behavior.

Regarding RQ2, the study designs and the distribution of topics in conceptual papers are investigated. Gamification is examined in the literature within 14 empirical and 14 conceptual papers. Empirical studies used various designs including quantitative, qualitative, and mixed method designs. Conceptual papers involve those studies that review the literature, describe a gamified application, give suggestions, and offer a theory or a model.

The last research question is about which gamification mechanics were used. Several gamification mechanics were used in empirical papers with points as the most utilized one ($N = 7$ studies), followed by leaderboards ($N = 3$).

Two studies (Bhattacharyya et al. 2018; Trees 2015) emphasized that Millennials' use of gamification may be because they are used to technology and games. Gamification has become an attractive tool particularly for this group; however, benefits come with a cost to older generations who are unfamiliar with games, as seen in Baxter et al. (2017) findings. Therefore, organizations that use gamification in their systems need to consider additional training for older generations and ensure user-friendly equipment for these groups.

In this review, two studies examined the dark side of the gamification. Oravec (2015) focused on the criticisms of gamification and made suggestions to overcome them. Some of the criticisms are about gamification's harmful effects on employee well-being, ignoring psychological needs, and doubts related to data collection. Game developers need to pay attention to explore and design games depending on the context, and they need to solve intergame compatibility, theme interaction, synergy, and participant overload (Oravec 2015). Likewise, Armstrong and Landers (2018) claimed that gamification does not serve the purpose most of the time if the process is not carefully analyzed so as to emphasize the role of design.

5 Practical Implications and Future Directions

5.1 *Practical Implications of Gamification in Business*

In this section, the use of gamification in organizations is explored. Gamification is used for attracting and identifying talent, assessing the employee's performance, and training the workforce. Gamification is used as a tool to attract young talent. For example, the Multipoly game, "PwC," presents job applicants with job tasks through a simulation. In a similar vein, MOL has an online game, "Freshhh," where teams of students compete with each other to solve real-life case studies of the MOL group's oil fields. The best team has a chance to pursue a career at MOL and get a monetary prize (Fenyvesi 2016). Marriott International has a game named "MyMarriott" which is an online hotel simulation for recruitment in specifically emerging markets (Soat 2018).

Gamification is suggested as one of the emerging areas for talent identification which can replace old methods such as IQ tests, situational judgment tests, and self-reports. For example, Pymetrics provides games for assessing cognitive and

emotional traits to present career suggestions. By using puzzle games on mobile phones, the company Knack can search for talent (Winsborough and Chamorro-Premuzic 2016).

Gamification also benefits three types of assessments. For example, by using simulations, the skills of a call center trainee can be tested via his/her reactions toward an angry customer. Secondly, with skill-based assessments, like “HackerRank” (a coding company), competitive games can measure the candidates’ coding skills. Lastly, gamification can be put into behavioral based assessment to find talent (Soat 2018).

Gamification is used in training as well. For instance, Xerox increased employee participation to 94% in training by gamifying. Gamification may also be a solution to challenges like recruiting efficiency, workforce diversity, and employee retention in the hiring process. By combining games and interviews, it may decrease screening processes. A blind gamification process can prevent biases in decision making. Lastly, gamification may improve internal mobility, which can hinder attrition (Narayanan et al. 2018).

5.2 *Future Directions*

As gamification is an emerging topic, more empirical and conceptual research is required for getting a better understanding of it. Also, future work may bring together researchers from engineering, management, and psychology to create more integrative studies about how gamification can be improved in business and what psychological and technological aspects are involved. Lastly, conferences which bring together researchers and practitioners may be beneficial as the interaction between the two groups is required for better gamified applications.

6 Conclusion

Gamification is a fascinating area of research across several fields. Although gamification is increasingly used by organizations for several aims, its success depends on whether the underlying mechanism, design, and theoretical background are well understood or not. In this chapter, a literature review on gamification in human resource management and organizational behavior domains has been offered. Totally, 14 conceptual and 14 empirical studies were found as eligible. Studies were embraced under eight titles: “motivation and performance,” “job recruitment and personnel selection,” “training and evaluation,” “employee engagement,” “health and well-being,” “communication,” “innovation and HR management,” and “ongoing research.” It was seen that few studies were done in each field. Also, some areas of research in organizational behavior and human resources management have not been examined yet.

When empirical studies were examined, it was seen that several designs were used including experimental, longitudinal, quantitative, and qualitative studies. The most popular gamification mechanics are points and followed by leaderboards. Users may change depending on their preference for gamification mechanics such that leaderboards can be preferred more by competitive people, whereas badges can be found more favorable by those who care about status. Comparison of gamification mechanics according to the user's personality may be a fruitful research area.

Gamification studies have been published for almost a decade. The oldest study in this review was done in 2015 which means gamification in business is a new area of research. Future studies can use better research designs and collect data from different business segments to get more robust inferences. Besides, making more conceptual research can result in stronger theoretical background about gamification.

This study is not without limitations. First, the literature review consists of only included papers published in journals from the selected databases based on the inclusion criteria. Second, books were excluded to limit the number of studies. Other databases and books may contain more papers in the examined fields. Despite the rapid growth in gamification research, studies are limited. This study helps to fill this deficiency and shows the current state of the literature. Gamification presents opportunities to businesses, but more studies need to be done in the future to improve practices.

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Burnout Among Academics: An Empirical Study on the Universities of Poland



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Abstract Professional burnout has been a growing problem not only for employees but also for their organizations, affecting the organizational costs as well as employee health and well-being. This chapter is based on the job demands-resources model of burnout which consists of two dimensions: exhaustion, i.e., general tiredness, bad mood, and fear in reaction to organizational stress, and disengagement, i.e., withdrawal from one's work owing to the difficulty in meeting professional requirements. The purpose of the study was to examine the level of burnout among Polish academics. The sector of higher education in Poland is currently experiencing significant changes which leads to subsequent major transformations. This evokes the need to continuously adapt to external demands so as to meet the expectations of the academic supervisors as well as of numerous external stakeholders. Thus, the dynamic environment that requires constant adaptation creates demanding working conditions at universities. Data were collected from 199 female and 141 male respondents working as academic staff in private and state universities in Poland. To measure the level of occupational burnout, a Polish adaptation of the Oldenburg Burnout Inventory (OLBI) was used. The analysis of the study resulted in the conclusion that the level of exhaustion is higher among the academics than the level of their disengagement. Sociodemographic characteristics and job characteristics served as differentiating variables.

Keywords Burnout · Job demands-resources model · Academic staff · The Oldenburg Burnout Inventory

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1 Introduction

European universities are currently undergoing important and dynamic changes at an unprecedented pace and scale (Enders et al. 2011). The changes have been triggered by political decisions which resulted from such European development strategies as the Bologna Declaration, whose aim was to increase the competitiveness and attractiveness of the European academic education, the EU's Lisbon Strategy, as well as its continuation, the Europe 2020 strategy (European Commission 2010), which aim at making Europe a highly competitive, innovative, and knowledge-based region. The implementation of these strategies is to be carried out with active participation of universities: "Europe must strengthen the three poles of its knowledge triangle: education, research and innovation. Universities are essential in all three. Investing more and better in the modernisation and quality of universities is a direct investment in the future of Europe and Europeans" (European Commission 2005, p. 2). Moreover, the political and social expectations of higher education institutions are contradictory: on the one hand, they are supposed to compete globally, but on the other hand they should respond to the current needs of local socioeconomic conditions and are therefore expected to be locally engaged (Zgaga et al. 2014). The major changes in the area of higher education in Europe have also been experienced in Poland for several years. Currently, for example, another reform is being implemented to increase the competitiveness of Polish universities. On the other hand, Polish universities are not organizational and functional copies of Western European universities, as the social and historical conditions have led, among other things, to the formation of interpersonal relations at Polish universities, referred to as "academic feudalism" (Kwiek 2015). This term refers to the division existing in the academic bodies: those with higher academic degrees (Habilitation degree and professorship title) and other employees (mainly PhDs and Masters). Moreover, the political and social expectations of higher education institutions are contradictory. On the one hand, they are supposed to compete globally, but on the other, they should respond to the current needs of local socioeconomic conditions and are therefore expected to be locally engaged. All this, combined with publication and promotion pressure, the need to apply for research grants, a large number of students per one academic teacher, and generally high uncertainty as to subsequent changes in the academic work environment, results in the fact that work at the university places high adaptation requirements on the individual (Werner and Springer 2018; Springer and Werner 2018). Such a situation, in the case of insufficient personal and organizational resources, might entail excessive psychophysical and emotional burden and consequently lead to the symptoms of professional burnout, in the form of increased exhaustion and reduced involvement (Bakker and Demerouti 2017). Therefore, questions regarding the level, differentiating factors, and consequences of burnout were asked. Thus, the aim of this chapter is to estimate the risk of burnout among the academics in Poland, to identify the factors differentiating the level of burnout, and to analyze selected consequences related to burnout. It was assumed that the level of professional burnout would differentiate

selected sociodemographic characteristics (e.g., the aforementioned difference between professors and other groups of academic teachers) and characteristics related to the specificity of work (e.g., weekly number of working hours). Further on, professional burnout was connected with the satisfaction from work at the university and with the intention to leave the university.

The chapter presents a brief review of the literature on selected concepts of occupational burnout and methodological assumptions, results, and conclusions evaluating the level of disengagement and exhaustion in the group of faculty academics in Poland.

2 Literature Review and Hypothesis

The concept of professional burnout has been present in the literature since the 1970s. The term burnout was first used as a literary metaphor for a situation in which an employee feels exhausted and sees no further opportunities to do his or her job (Maslach et al. 2001). The negative effects of overburdening in the workplace have quickly become an important subject of debate and research (Freudenberger 1974; Maslach 1976). In the initial phase of the study on burnout, the main focus was clinical: both Herbert Freudenberger as a psychiatrist and Cristina Maslach as a social psychologist conducted a series of in-depth interviews with people suffering from excessive stress at work. The first period involved a qualitative research and it was only with time that researchers began to diagnose the problem on a wider scale, conducting quantitative research and identifying the key causes, symptoms, and differences in the course of professional burnout (Maslach et al. 2001). Initially, the group of workers whose professional burnout was analyzed included service workers who, confronted with excessive bureaucracy and lack of support, felt fatigue and physical and mental exhaustion. But over time it was noticed that this problem affects employees in practically every profession (Schaufeli and Salanova 2014). Extensive research carried out by Schaufeli and Salanova (2014) shows that 6% of all workers already suffer from burnout and a further 16% are at risk thereof. According to Lindblom et al. (2006), 18% of employees showed a high level of professional burnout in Sweden.

Identifying the relationship between the requirements to be met by the employee and the resources that can be used in the course of his or her work is crucial for risk assessment and burnout prevention (Demerouti et al. 2001; Bakker et al. 2004). According to the demands-resources model, which has become one of the most important approaches indicating the determinants of employee well-being, resources include all physical, psychological, social, and organizational factors that contribute to the achievement of the organization's objectives and lead to employee development. At the same time, the demands of work include all the aspects of professional work that mean that an employee must make physical, mental, or emotional effort (Hakanen et al. 2008). Excessive demands accompanied by low organizational support lead to negative consequences such as professional burnout. The

demands-resources model was confirmed by research on various groups of employees, including the academic staff (Boyd et al. 2011).

In the research on stress and burnout, academics complain about excessive requirements and point to a heavy workload, lack of time to keep up to date as well as the time-consuming preparation for the classes they teach (Doyle and Hind 1998), a multitude of functions and tasks they are expected to complete (Schmidt 2017), as well as inadequate resources, e.g., inadequate salary, the conflict between personal and departmental goals (Doyle and Hind 1998), and underestimating their teaching work (Schmidt 2017). What is more, the need to compete for these scarcely available resources results in the development of individualistic attitudes and a lack of identification with the university (Pienidz 2017). In order to cope with the multiplicity and complexity of tasks while trying to secure satisfactory remuneration (e.g., through overtime or working at two universities), many academics devote more and more time to their work. The academic staff generally have flexible working hours, yet the number of hours devoted to teaching, research, and organizational activities should not exceed 40 hours per week. However, it is evident that, in many cases, employees wishing to advance in their research work, or for financial reasons, devote much more time to their work. It can therefore be concluded that members of the academic staff have to deal with an excessive burden, which may result in their burnout. Therefore, a hypothesis was put forward:

H1 : *The amount of working hours is positively related to the risk of occupational burnout.*

In addition to the requirements, the availability of resources, both organizational and personal ones, is the second key factor for the perceived burnout (Taris and Schaufeli 2016). Job resources may be located at the macro-organizational level (e.g., career opportunities, job security), the interpersonal level (e.g., supervisor and coworker support), the specific job position (e.g., role clarity, participation in decision making), and at the level of the task (e.g., skill variety, task identity, task significance, autonomy, and feedback). However, the use of organizational resources depends on personal resources. The research into personal resources carried out by Xanthopoulou et al. (2007) mediated the relationship between job resources and engagement/exhaustion and influenced the perception of job resources. In Conservation of Resources Theory (COR), which is also referred to by the authors of job demands-resources model, Hobfoll (1989) recognized four types of resources, namely objects, conditions, personal characteristics, and energies. Therefore, the use of holiday leave by employees is an important factor determining the employee's well-being (Westman and Etzion 2001) as it gives them an opportunity to replenish their energy which constitutes an important resource. Insofar as the literature identifies personal characteristics for employee well-being (Xanthopoulou et al. 2008; Lorente et al. 2014; Grover et al. 2016), no work has been found which analyzes the relationship between an employee's energy and well-being. Hence, referring to the job demands-resources model and the conservation of resources theory, another research hypothesis was put forward:

H2 : *The amount of leisure days is negatively related to the risk of occupational burnout.*

The group of academic staff is differentiated not only in terms of demographic variables, but also, which seems to be more important from the point of view of the scope of requirements imposed on employees, in terms of the stage of their professional career. In the case of research and teaching staff employed at Polish universities, the career stages are closely related to their academic degrees. At the same time, despite numerous reforms and changes that have affected Polish science in recent years, many employees see significant barriers to conducting scientific research (Kowzan et al. 2016; Kwiek 2015), and they are in doubt as regards the transparency of the system of promotions (Pieniądz 2017). At the same time, the stability of employment, as well as the assessment of the academic staff, is determined by the achievement of subsequent academic degrees. For this reason, it was considered that the workload and psychological pressure would be the strongest in the group of dependent workers; hence, the third research hypothesis was made:

H3 : *Assistant professors are the group facing the highest risk of occupational burnout.*

Studies in the area of burnout, which have been carried out for several years, show that burnout has negative consequences for the mental and physical health of the employee (Maslach 2001), as well as being an important factor relevant for achieving the expected organizational effects, including involvement, work efficiency (Bakker et al. 2004), absenteeism (Bakker et al. 2009), or devotion to the organization (Hakanen et al. 2008). All these implications make the issue of burnout important not only from the perspective of employee welfare but also for the functioning of entire organizations, including universities. Therefore, two further research hypotheses were put forward, indicating a connection between burnout and negative attitudes of employees toward their work:

H4 : *The level of occupational burnout is negatively related to the level of job satisfaction.*

H5 : *Level of occupational burnout is positively related to the intention to resign from the job.*

3 Methodology

The research was of a quantitative nature, and it was carried out in 2017. The research data were collected by means of an online questionnaire. In total, about 1200 invitations to participate in the study were sent out, addressed to the employees of public and private universities from all over Poland. Eventually, 340 correctly completed questionnaires were submitted. The majority of respondents (72.6%) were employed at public universities, less than every tenth respondent (9.3%) was

Table 1 The structure of the respondents with a view to their sex and academic degrees

Academic degrees	Women (%)	Men (%)	Total (%)
MA/MSc degree	10.58	6.18	16.76
PhD degree	32.95	19.7	52.65
Habilitation degree	12.65	10.29	22.94
Professorship title	2.36	5.29	7.65
Total (%)	58.54	41.46	100

Source: Authors' own study

Table 2 The structure of the respondents with a view to their age and years of experience

		Number of respondents	Valid percentage of respondents
Age	< 35	85	25.22
	35–44	136	40.36
	45–54	72	21.36
	55–64	32	9.50
	> 65	12	3.56
Total		337	100.00
Missing data		3	
Years of experience	Up to 5 years	75	22.12
	6–10 years	66	19.47
	11–20 years	109	32.15
	21–30 years	54	15.93
	Above 30 years	35	10.32
Total		339	100.00
Missing data		1	

Source: Authors' own study

employed at a private university, and almost every fifth (18.1%) was a full-time employee of both public and non-public universities—this proportion captures very well the employment structure depending on the type of university (Central Statistical Office 2017). More than half of the studied group consisted of academic teachers with the PhD degree; the second most numerous was the group of academics with Habilitation degree (almost 23%). The sample was dominated by women, 35–44-year-old with work experience of 11–20 years. Detailed characteristics of the research sample in terms of basic variables (sex, degree of scientific advancement, age, seniority) are presented in Tables 1 and 2.

The examined sample of academic teachers can also be described with regard to certain features of the working environment, especially those related to the intensity of work measured by the number of working hours (total obligatory hours resulting from the implementation of the so-called teaching workload and overtime), as presented in Table 3.

According to the Polish legislation in force, academic staff employed at a higher education institution are entitled to 36 days of paid leave. For practical reasons,

Table 3 The structure of the respondents with a view to their annual workload

		Number of respondents	Valid percentage of respondents
Annual, averaged number of teaching hours completed in the last 2 years	< 250 h	146	43.58
	> 250 h	189	56.42
Total		335	100.00
Missing data		5	
Weekly, average number of working hours	< 40 h	175	52.40
	> 40 h	159	47.60
Total		334	100.00
Missing data		6	

Source: Authors' own study

Table 4 Average annual number of holiday days the academic staff spent resting

		Number of respondents	Valid percentage of respondents
Average annual number of holiday days the academic staff spent resting	< 7 days	49	14.6
	7–14 days	99	29.5
	15–24 days	91	27.1
	25–35 days	42	12.5
	36 days	55	16.4
Total		336	100.0
Missing data		4	

Source: Authors' own study

teachers may take time off work during the summer and winter semester breaks. Due to the task-based system of work done by research and teaching staff and their workload, it was intended to find out what amount of holiday time is actually spent resting. The results are presented in Table 4.

The Polish adaptation of the Oldenburg Burnout Inventory (OLBI), a tool developed Demerouti and Bakker (2008), was used to measure the level of occupational burnout. The questionnaire consists of sixteen items and two sub-scales (each with eight items) of exhaustion and disengagement from the job. The respondents could use a 4-point scale, from 1 “I agree” to 4 “I do not agree.” In each of the sub-scales, half of the statements were worded negatively and half positively. After reversing the answers, averages were calculated for each scale. The Polish version of the scale meets the criteria of theoretical accuracy and has satisfactory reliability measures (Baka and Basińska 2016; Chirkowska-Smolak 2018). A single-item scale

was used to measure job satisfaction, asking respondents to respond to the statement: “My overall job satisfaction at university is at a high level.” In order to diagnose the intention to resign from work, a single-item scale in the form of a statement was used: “If I had the opportunity to make a real choice, I would give up working full-time at the university.” In both cases, the respondents replied on a 5-point scale (“I definitely don’t agree,” “I rather disagree,” “It’s hard to say,” “I rather agree,” “I definitely agree”).

4 Results

In the studied group, the average level of professional burnout was 2.4 (sd 0.48), the level of exhaustion was 2.5 (sd 0.6), and disengagement was on the level of 2.29 (sd 0.46). Comparing the results with the disengagement and exhaustion standards developed by Baka and Basińska for a group of people in social professions (2016), it is noticeable that the professional group under examination is particularly exposed to exhaustion since as much as 39% of the respondents showed high results. In the case of disengagement, the situation is slightly better as high results were obtained by 16% of the respondents (Table 5).

As far as exhaustion is concerned, significant differences between the respondents were observed in the case of two differential variables: weekly working hours and the number of days actually spent resting during holidays (Table 5). More than half of those who devoted over 40 hours a week to all work-related activities were highly exhausted. The variables such as sex, age, job tenure, the academic degree, and the number of teaching hours performed during the year did not significantly diversify the studied group. The university employees who spent less than 25 days a year resting were significantly more physically, emotionally, and cognitively

Table 5 The level of occupational burnout of academic teachers and the differentiating variables

	Exhaustion	Disengagement
Distribution of levels	%	%
Low	16.3	23.4
Average	44.4	59.9
High	39.3	16.6
Differentiating variables	p values	p values
Sex ^a	0.65	0.20
Age ^b	0.71	0.15
Years of experience ^b	0.45	0.05
Academic rank ^b	0.85	0.02
Working hours weekly ^b	0.00	0.11
Teaching hours per year ^b	0.86	0.05
Leisure days per year ^b	0.00	0.00

Source: Authors’ own study

^aMann–Whitney test

^bKruskal–Wallis test

exhausted in comparison to the group using the time off for rest. This suggests that there is a link between exhaustion and increased work intensity exceeding 40 hours per week, which limits the time that can be used for systematic rest and psychophysical regeneration and indicates that less than 25 days of rest per year also does not sufficiently restore psychophysical resources. Thus, Hypothesis H1 might be accepted that the amount of working hours is positively related to the risk of occupational burnout. Additionally, this leads to accepting Hypothesis H2 which says that there is a negative connection of the number of days spent resting with the threat of professional burnout.

The second dimension of professional burnout, i.e., disengagement, was differentiated by four variables monitored in the study: the duration of service, the academic degree, the number of teaching hours during the academic year, and the number of days of leave spent on recreation (Table 5). A higher level of disengagement is observed among employees with moderate employment experience (6–20 years) in comparison to the academic teachers with the longest employment (over 30 years). This can be explained by the specificity of the academic career development. The employees with moderate employment are usually those in the position of assistant professors who are obliged to achieve the next level of promotion—Habilitation degree. Among the employees with the longest career experience, there are the largest number of professors who, having reached the highest level of academic advancement, are not subject to pressure of further career development and have a stable tenure in the structure of the university. An analogous explanation can be applied in the case of the differentiating importance of the academic degree: compared to other groups (with MA/MSc degree, PhD degree, and Habilitation degree), a greater commitment is shown by the group of professors. Therefore, Hypothesis 3 can be partially accepted, since as regards the disengagement component, only those with lower academic degree suffered from a higher level of professional burnout. A higher level of disengagement of commitment is also manifested by employees with a higher workload, i.e., those teaching more than 250 hours per year and resting less than 25 days per year.

As in the case of exhaustion, neither gender nor the age of university employees was significant. Interestingly, the weekly working hours, exhausting as they might be, were not relevant as regards the lack of commitment, which may suggest that intensive academic work may be exhausting, but does not necessarily reduce job commitment. Comparison of job satisfaction with three standardized levels of professional burnout (low, average, high) revealed further dependencies, both in terms of exhaustion and disengagement (Figs. 1 and 2). The vast majority of respondents (83.6%), who did not show exhaustion, confirmed with varying degrees of certainty that they felt a high level of job satisfaction. Fewer people (67.1%) were in the group with moderate exhaustion and the least in the group with high exhaustion rate (40.6%), so the H4 hypothesis.

Hypothesis 4 is confirmed by the analysis of the relationship between the level of satisfaction and the level of disengagement (Fig. 2): the vast majority of employees (84.8%), who did not lose their commitment, were satisfied with academic work, a lower percentage of people who felt satisfaction (62.1%) was in the group showing

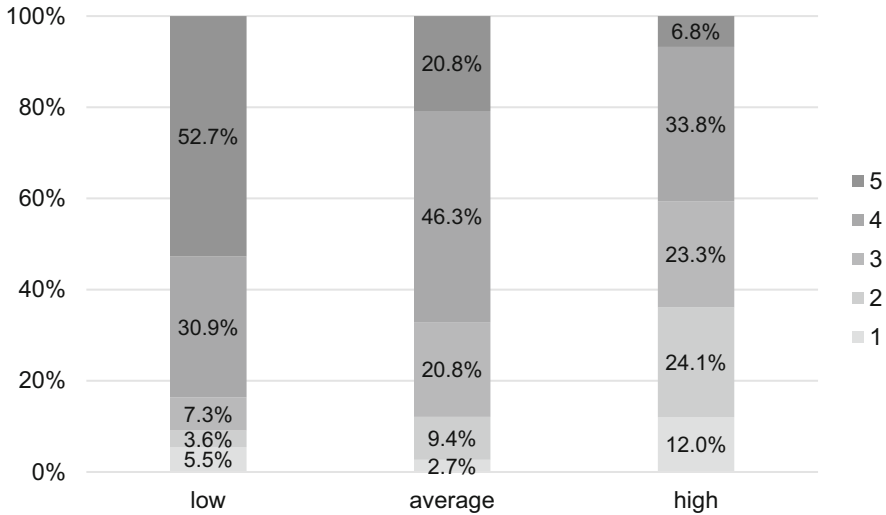


Fig. 1 Level of job satisfaction at different exhaustion levels. (Note (1) The respondents referred to the statement: “My overall job satisfaction at university is at a high level” (1—“I definitely don’t agree,” 2—“I rather disagree,” 3—“It’s hard to say,” 4—“I rather agree,” 5—“I definitely agree”). (2) Significance of differences measured by the Kruskal–Wallis test, $p = 0.000$. Source: Authors’ own study)

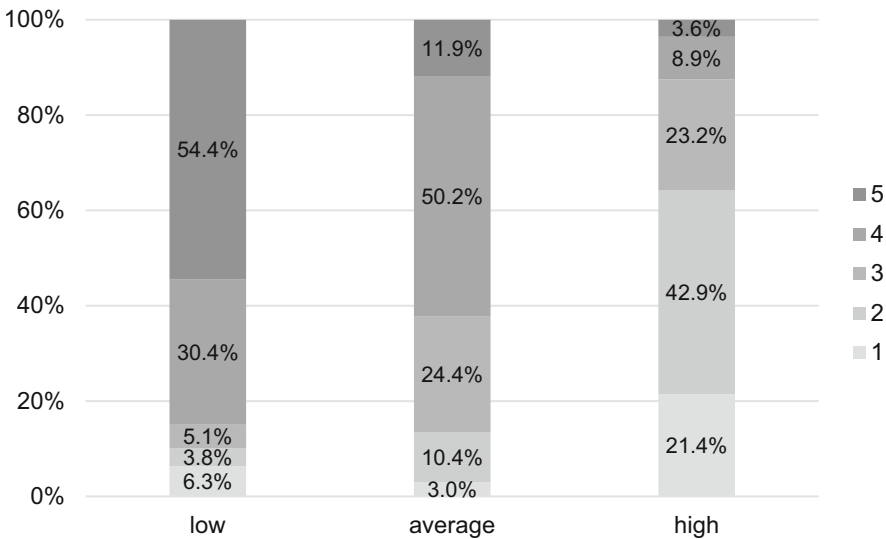


Fig. 2 Level of job satisfaction at different disengagement levels. (Note (1) The respondents referred to the statement: “My overall job satisfaction at university is at a high level” (1—“I definitely don’t agree,” 2—“I rather disagree,” 3—“It’s hard to say,” 4—“I rather agree,” 5—“I definitely agree”). (2) Significance of differences measured by the Kruskal–Wallis test, $p = 0.000$. Source: Authors’ own study)

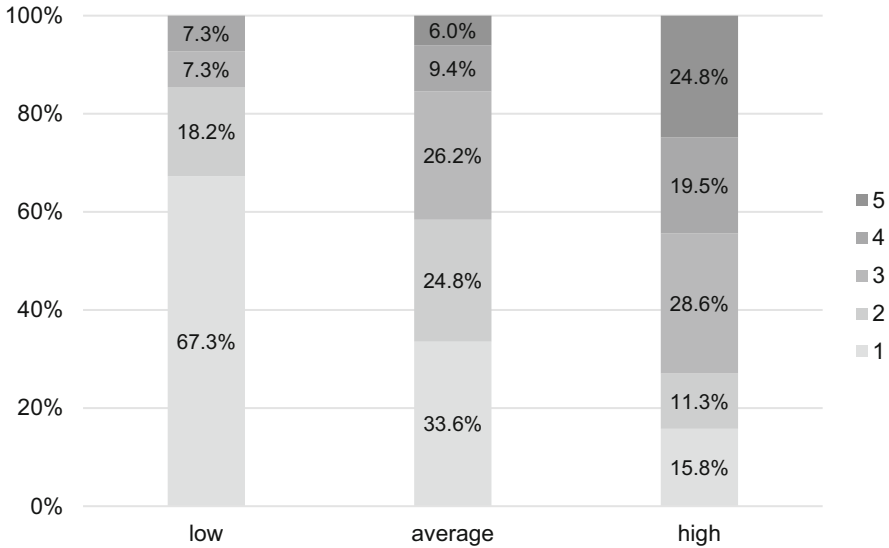


Fig. 3 The willingness to give up work at different levels of exhaustion. (Note (1) The respondents referred to the statement: “If I had the opportunity to make a real choice, I would give up working full-time at the university” (1—“I definitely don’t agree,” 2—“I rather disagree,” 3—“It’s hard to say,” 4—“I rather agree,” 5—“I definitely agree”). (2) Significance of differences measured by the Kruskal–Wallis test, $p = 0.000$. Source: Authors’ own study)

exhaustion at the average level, and in the group with high disengagement rates only 12.5% declared satisfaction from work at universities, while the percentage of dissatisfied people was high (64.3%). To sum up, it should be noted that in relation to the low and moderate disengagement rate (Fig. 2), a very similar distribution of results was obtained for the level of disengagement as for the level of exhaustion (Fig. 1). However, a significantly different distribution of results was obtained for the high disengagement rate, and therefore, it may be assumed, it is the level of disengagement rather than exhaustion which more accurately indicates the lack of academic work satisfaction. Hypothesis 5 assumed that the higher the level of professional burnout, the greater willingness to resign from the job. This correlation was fully confirmed for both professional burnout dimensions (Fig. 3, Fig. 4): the lowest for the low level (7.3% for exhaustion vs. 7.6% for disengagement), slightly higher for the average level (15.4% for exhaustion vs. 21.4% for disengagement), and significantly increased for the high level (44.3% for exhaustion vs. 64.3% for disengagement).

As in the case of academic work satisfaction, in the case of the intention to leave the job, it is more clearly marked with respect to disengagement than exhaustion (64.3% vs. 44.3%), which once again indicates that university employees are better able to cope with the requirements causing exhaustion than with the aspects of their work leading to disengagement.

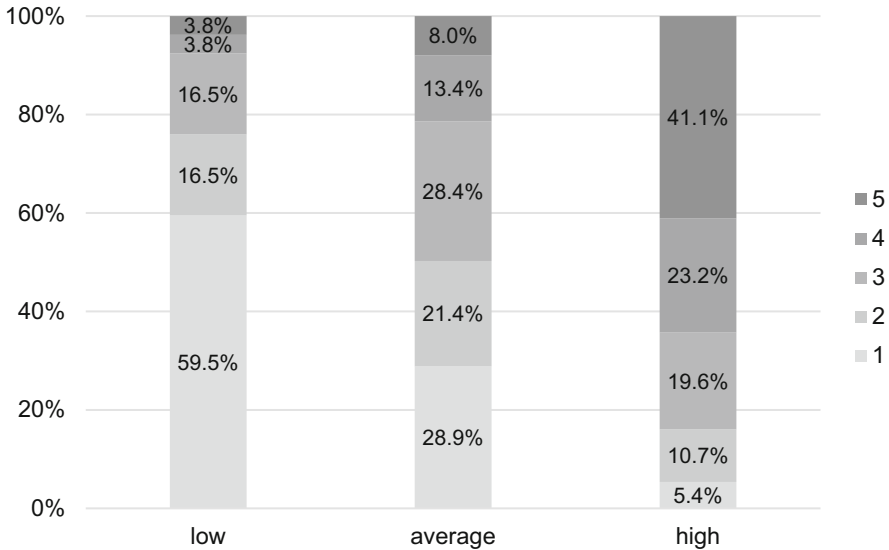


Fig. 4 The willingness to resign from work at different disengagement levels. (Note (1) The respondents referred to the statement: “If I had the opportunity to make a real choice, I would give up working full-time at the university” (1—“I definitely don’t agree,” 2—“I rather disagree,” 3—“It’s hard to say,” 4—“I rather agree,” 5—“I definitely agree”). (2) Significance of differences measured by the Kruskal–Wallis test, $p = 0.000$. Source: Authors’ own study)

5 Conclusions

In the study group of academic teachers, the average intensity of the overall professional burnout measured by the Oldenburg Burnout Inventory was obtained. Adequate analysis can be made by comparing the obtained data on exhaustion and disengagement. Compared to the results obtained during the standardization of the tool (Baka and Basińska 2016) on the sample of people working in social professions ($N = 1804$), in our study the identical averages for the sub-scale of disengagement ($M = 2.29$) were obtained, while the average in terms of exhaustion was higher in the study of university employees ($M = 2.5$) in comparison with people working in social professions ($M = 2.31$) (Baka and Basińska 2016). Moreover, nearly 40% of academic teachers are highly exhausted (i.e., $M \geq 2.75$). Interestingly, further analyses have revealed that in terms of selected consequences (i.e., job satisfaction and willingness to leave the job), a high level of disengagement is negatively linked to job satisfaction and positively linked to willingness to resign from the job. At the same time, a high degree of exhaustion shows similar relationships with job satisfaction and the willingness to resign from the job, yet the intensity of these relationships is weaker.

According to the concept of job demands-resources (Demerouti and Bakker 2008), exhaustion appears as a result of exposure to long-term job demands in the physical, emotional, and cognitive spheres. This suggests that Polish academics are

subject to high stress, which is confirmed by the results of the measurement of perceived work-related stress: university employees obtained higher rates than the people working in other sectors (Werner and Springer 2018). A high level of disengagement is present in a lower percentage of academics compared to the exhaustion factor. The disengagement factor is a measure of identification with the job, especially with its content (Demerouti and Bakker 2008); hence, it can be concluded that despite considerable job demands, the majority of university employees identify themselves with the objectives of their work, accept its content, and, as it may be assumed, see some sense in it, despite the intense psychophysical effort associated with it. This conclusion is complementary to the conclusions obtained by us on the same research sample (Werner and Springer 2018). Although the academics surveyed perceive more risks arising from the content of the work (e.g., the need for long-term focus or the need for continuous development) than from the context of the work, they feel the burden of the work context to a higher degree. Therefore, we are left with the question of identifying organizational and individual resources which, with high requirements and the accompanying stress, will allow the vast majority of academics to retain at least a moderate level of engagement. Several such factors can be observed from our research: higher rank in the university hierarchy and longer work experience (professors as well as the staff with the greatest work experience show a lower level of disengagement), less commitment to teaching work, which usually also involves a higher level of promotion and taking more time off for rest rather than for research work (preparing publications, grant projects, preparation for conferences, etc.). The relationship between work requirements and burnout can also be influenced by other intermediary variables, such as mastery or goal orientation, which, as shown by Van Yperveen and Janssen, moderate the relationship between work requirements and satisfaction (2002). In the case of a professional group of academic staff, the analysis of internal motivation as an important personal resource seems to be particularly important, both from the point of view of the multitude of roles that academic staff members have to face (Gordon and Whitchurch 2007; Gordon 1997) and ongoing discussions about changes in the ethos of academic work (Kwiek 2017). It therefore seems necessary to take this variable into account in further work on the well-being of the academic staff.

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Physical Activity as a Moderator of a Relationship between Work-Related Hazards and Professional Burnout of Polish Academics



Agata Basińska-Zych and Agnieszka Springer

Abstract Empirical papers on association between physical activity (PA) and professional burnout (PB) and work-related hazards (WRH) in a population of different working adults are still limited. The aim of this chapter is to characterize the level of habitual physical activity of academics working at higher education institutions of Poland, with particular reference to leisure-time physical activity (LPA). Moreover, the chapter also tries to answer a question whether LPA is an important moderating variable of the relationship between work-related hazards and professional burnout. A quantitative research was carried out from September till December 2017 [$N = 340$]. The online questionnaire consisted of three research tools: the Psychosocial Risk Scale (SRP), the Oldenburg Burnout Inventory (OLBI), and the International Physical Activity Questionnaires (IPAQ), the long form with demographic characteristics. In the chapter, different statistic tests (the independent-samples t-test, one way-ANOVA, the Mann–Whitney U-test, and Kruskal–Wallis test) and descriptive statistics were included. More than 60% of respondents were classified to the high level of PA according to IPAQ. LPA was declared by 41.8% of academics (vigorous—35.5%, moderate—29.7%, walking—64.5%). To analyze the significance of leisure-time physical activity as a variable moderating the hazards/professional burnout relationship, regression analysis with interaction was conducted. Only in the case of one model referring to the perceived job context-related hazards/exhaustion relationship, statistically significant moderating effect of LTA was found.

Keywords Academics · Health and well-being of employees · Physical activity · Leisure-time physical activity · Professional burnout · Work-related hazards

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1 Introduction

Studies on relationships between physical activity (PA) and professional burnout (PB) and work-related hazards (WRH) in a population of different working adults are still limited. Although positive role of motor activity on both mental and physical health is commonly known, globally, society's level of physical activity is still insufficient. In fact, the cause of more than 3.2 million deaths around the world is a sedentary lifestyle and inactivity. In the global perspective, over a third of people in the teenage age and more do not fulfill the World Health Organization (WHO) recommendation regarding PA (Hallal et al. 2012). Frequency of inactivity varied remarkably in different parts of the world: 17.0% of inactive people in Southeast Asia, 27.5% in Africa, 33.7% in Western Pacific, 34.8% in Europe, 43.2% in Eastern Mediterranean, and 43.3% in Americas (Hallal et al. 2012). According to data of the European Commission (European Commission 2018), in Poland, about 56% of people never exercise or play sports. According to Kohl 3rd et al. (2012), the lack of PA is a growing pandemic that is the fourth leading cause of mortality worldwide.

We can see growing interest in economic effects of physical inactivity of professionally active people both on institutional (for the employer) and individual (for the employee) level. This includes costs related to sick leave, occupational diseases, and increased costs of turnover of employees who, complaining of professional burnout, often suffer from depression and not infrequently leave their job. In 2002, the European Commission calculated costs of occupation-related stress in 15 EU member states at EUR 20 billion per year. In 2013, the costs of work-related depression in the EU countries were estimated at EUR 617 billion annually. In particular, this amount of money was made up of costs caused by absenteeism and presenteeism (EUR 272 billion), loss of productivity (EUR 242 billion), healthcare costs (EUR 63 billion), and social welfare costs in the form of disability benefit payments (EUR 39 billion) (European Agency for Safety and Health at Work—EU-OSHA 2014).

Although the issue of physical activity having counteractive effect on negative consequences of work overload has already been described in scientific literature, empirical papers concerning the particular professional group of academics are lacking. Employees of higher education facilities in different European countries declare high level of job satisfaction, but at the same time they declare high personal strain and every sixth person said that if they were able to choose again they would have changed their profession (Kwiek and Antonowicz 2013). Hence, to be able to propose proper prophylactic measures, it is relevant to establish whether PA is a significant factor preventing negative effects of identified psychosocial hazards. Currently, a relatively small number of studies concern physical activity of academics and no analysis was made of its importance for employee's well-being.

Dissemination of physical activity among employees of higher education facilities may be a way to counteract negative effects of both occupational stress and negative consequences of sedentary work. To design specific activities in terms of promoting physical activity, e.g., in the work environment, the necessary step is to diagnose its level. The aim of this chapter is to characterize and determine the level

of habitual PA of academics working at higher education institutions of Poland, with particular reference to physical activity at work and during leisure time. Moreover, the chapter also tries to answer a question whether LTA is a relevant moderator of the relationship between work-related hazards and professional burnout. While a large body of the literature documented the relevance of the impact of PA of employees of various professional groups on improving their well-being, there is a dearth of empirical evidence of the impact of LTA focused on academic staff. The impact of physical activity on improving the quality of life of elementary school teachers (Özdöl et al. 2014), or selected relaxation or mindfulness interventions on improving the well-being of in-service teachers (Hwang et al. 2017) or evaluation of special health-based initiatives promoting the improvement of teacher well-being, was proved (Jennings et al. 2019; Maratos et al. 2019). However, previous studies did not consider the impact of LTA of academic teachers on the relationship between the negative consequences of overload academic teachers and burnout in the context of the requirements model—resources.

2 Theoretical Background

2.1 Work-Related Hazards and Professional Burnout in the Group of Academics

The term professional burnout has been present in the scientific literature since the 1970s and is currently defined as a psychological syndrome that is a consequence of prolonged stress. In the concept developed by Maslach (2003), reaction to stressors is complex and depends on the stress experience (exhaustion) that encompasses person's response to the job (cynicism) and to himself or herself (feelings of inefficacy). Initially, the studies on professional burnout focused mainly on social professions; however, in time it has been noticed that it can occur in a profession of any kind (Schaufeli and Salanova 2014). According to a job demands-resource model, every job is performed in a certain relation between demands employees must meet and resources they can use (Bakker et al. 2004). Job demands include all aspects of a job requiring physical, mental, and emotional effort, while the resources include all the physical, psychological, social, and institutional factors that contribute to reaching institution's goals and that enable employees' grow (Hakanen et al. 2008). According to the job demands-resources model, professional burnout results from excessive demands, such as work overload, time pressure, number of work hours or number of clients, recipients, etc., and lack of job resources, i.e., social support from colleagues and supervisor, feedback, participation in decision making, or job control. Excess of demands and lack of resources can be identified with psychosocial hazards that according to Tom Cox's concept can be divided into job content- and job context-related hazards (Cox and Rial-Gonzalez 2002). Factors connected to the job content include the so-called hard elements of work

environment, i.e., physical conditions, interior fittings, scope of tasks, number of tasks, and working hours. Whereas factors connected to job context include “softer” aspects resulting from organizational culture and climate of an institution, i.e., such factors as interpersonal relations, growth opportunities, work–life balance, autonomy, participation, and control.

Employees of higher education institutions in their everyday life face hazards connected to both content and context of the job. In Poland as well as in other European countries for years, academics have been feeling pressure and lower institutional and social support, which results in feeling stressed and in further consequence in professional burnout. Universities are increasingly taking care of students and implement customer relationship management and quality management (Ghobehei et al. 2019; Hrnjic 2016) but at the same time they do not care enough about the employees. As it was shown by in-depth individual interviews with Polish academics, realized by Kowzan and colleges (2016), high number of obligatory teaching hours, constant changes of curriculum, and growing institutional requirements cause the employees to feel stressed due to lack of time for research. An additional factor putting pressure on academics of Polish higher education institutions is functioning in a situation of substantial changes connected to implementation of the Higher Education and Science Act (the Act 2.0). Several years of discussion on the Act’s objectives resulted in them not knowing what were the requirements connected to academic advancement as well as what was their employing institution’s future. Polish academics feel no institutional support and acknowledgment, especially of their involvement in teaching tasks (Schmidt 2017). The picture of problems experienced by Polish academics does not differ much from the experiences of British academics. Employees of higher education institutions in Great Britain also indicate overload with professional responsibilities, pressure of deadlines, and inadequate remuneration (Doyle and Hind 1998). Research findings indicate, however, that academics deal with job content-related hazards relatively well, while the stress level is much higher when it comes to the job context-related hazards (Werner and Springer 2018). This supports the view that availability of resources is of more significance to professional burnout than job’s demands (Boyd et al. 2011).

2.2 Health-Related Physical Activity and Its Implications for Well-being of Academic Teachers

The definition physical activity means any bodily movement leading to expenditure of physical energy (Sims et al. 2009, Arimi Fitri et al. 2015). On the other hand, the habitual physical activity of every person consists of such components as physical activity at work (WPA), physical activity related to transport (TPA), home and gardening activities (yard) (H&GPA), and leisure-time physical activity (LTA).

Researchers suggested that adults should spend minimum “0.5” hours on moderate-intensity PA daily (Pate et al. 1995; Blair et al. 2004).

According to the WHO recommendations, healthy, working-age (18–64 years old) adults—to stay healthy and prevent civilization diseases—should engage in moderate (≥ 150 min/week) or intense (≥ 75 min/week) physical activity or in an equivalent combination of moderate and intense activity (WHO 2010). However, it is possible to accumulate the activity from other fields of everyday life (free time, transportation, home and garden works, and professional work) (Biernat and Piątkowska 2014). Walking is also an important component of physical activity. Current recommendations of scientifically proven positive influence on human health amount to 10,000 steps a day as an equivalent of cumulative moderate PA (Tudor-Locke et al. 2011; WHO 2010). It is worth noting that although the WHO recommendations concern physical activity throughout an entire day, in recent years, the importance of work-related physical activity is emphasized more and more often. American studies showed that including this type of activity in the estimated total amount of physical activity increases the percentage of people meeting the WHO requirements by 6.5% and in some professional groups even by 14–16% (Bensley et al. 2011; Kwak et al. 2012; Yore et al. 2006).

Health-related effects of regular physical activity have been well documented empirically (Puciato et al. 2018). PA improves mental and physical health (Schmitz et al. 2005; Booth et al. 2001; Mechelen et al. 2000) and minimizes the risk of occurrence of chronic diseases (Helmrich et al. 1994; Hu et al. 2005; McTiernan et al. 2003). Different study results indicate that physical exercise can effectively improve physical fitness (Rożek-Piechura et al. 2014; Norton et al. 2016) and reduce the risk of prevalence of such diseases as type 2 diabetes (Mynarski et al. 2012), obesity (Dikareva and Andersen 2016), muscle atrophy (Ikezoe et al. 2011), sarcopenia (Bosaeus and Rothenberg 2016), osteoporosis (Bruyere 2016), arterial hypertension (Williamson et al. 2016), coronary heart disease (Varghese et al. 2016), and some types of cancer (Goncalves et al. 2014). Researchers also noted positive effects of physical activity on mental health, such as stress alleviation (Corazon et al. 2010; Stults-Kolehmainen and Sinha 2014), improvement of perceived health condition and self-esteem (Heiestad et al. 2016), reduction of anxiety and depression levels (Dziubek et al. 2016), improvement of sleep sufficiency (Tsunoda et al. 2015), fatigue (Theorell-Haglöw et al. 2006), or cognitive impairments (Chang et al. 2010; Lautenschlager et al. 2008; Rovio et al. 2005).

Regular physical activity, especially during leisure time, also has a positive influence on employees’ general well-being (Puig-Ribera et al. 2015) and effective functioning not only in private life but also in professional life. It can also positively influence the work–home interaction and general level (quality) of life (QOL) (Lindsay et al. 2016). Physically active employees are productive and healthy workforce (Samson-Akpan et al. 2013). According to Shepherd (1997) and Ammendolia et al. (2016), physically active workforce tend to report less illness and recover faster, experience less work absence (Lahti et al. 2010; Loitz et al. 2014) and lower staff turnover, are more productive and effective, have fewer industrial injuries, and report higher levels of job satisfaction (Hashim et al. 2011). Physically

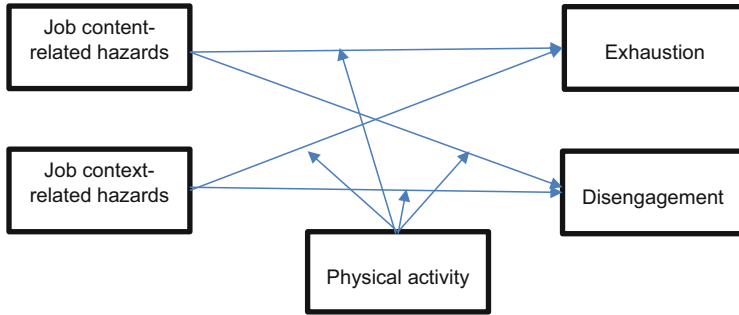


Fig. 1 Proposed model of mediation. (Source: authors own study)

active employees are less likely to suffer from major health problems, take sick leave, and have accidents at work (Barton 2013; Samson-Akpan et al. 2013; Dishman et al. 1998).

Previous studies prove beneficial influence of regular leisure-time exercise of professionally active people on cardiac conditioning, reducing the level of substances associated with stress in bloodstream, e.g., cholesterol (Lima de Araújo Silva and Alchieri 2014), reduction of work-related stress level (Kivimäki et al. 2002; Lahti et al. 2012; Lima de Araújo Silva and Alchieri 2014; Gerber et al. 2014), lowering the risk of work-related depression (Whiteford et al. 2013), reduction of back pain resulting from sedentary work (Hicks et al. 2003) and musculoskeletal complaints of upper part of the body connected to working in a forced seating or standing position in highly automated manufacturing (Wixted et al. 2018), and prevention of mental exhaustion and finally preventing the professional burnout (Anderson et al. 1999; Armon 2014; Lima de Araújo Silva and Alchieri 2014). Interesting studies by Armon (2014) confirmed significant influence of physical activity on the relationship between the type D personality and professional burnout.

Other researchers' findings provided evidence for physical activity being a protective mechanism and helping in preventing professional burnout also in the case of academics. The use of a mediation model proposed and tested by the authors which uses the level of physical activity as potential mediator takes a new approach to linking work-related hazards (job content and job context) and burnout syndrome (Fig. 1).

The chapter tests the following hypotheses:

H1 The level of physical activity, especially leisure-time physical activity of academics, is insufficient.

H2 The level of physical activity mediates the relationship between negative consequences of job content- and context-related hazards and burnout syndrome in the occupational group of Polish academics.

3 Methodology

A quantitative research was carried out from September till December 2017. The questionnaire consisted of several research tools. In total, about 1200 invitations to participate in the study to 1200 scientific and teaching staff from various public and non-public universities in Poland were sent. The selection was purposeful. The return rate of the filled online questionnaires was 28.3% (341 questionnaires). One questionnaire was not included in further analyses due to significant gaps in data. 11 respondents, whose physical activity exceeded 16 hours (960 minutes) according to the IPAQ methodology, were excluded from the assessment of the level of physical activity and statistical tests ($N = 329$) (IPAQ Research Committee 2005).

In order to verify the hypotheses put forward in this chapter, three tools were used. To measure work-related hazards, the Psychosocial Risk Scale (SRP) developed by Mościcka-Teske and Potocka (2014) was used. SRP refers to the concept of T. Cox, in which he shares hazards in job context and job content. In addition, the authors of questionnaire added pathologies in the tool, but they were not included in the analysis. Job content included 14 items and job content 28 items; for each question, the respondent indicated if he perceives the hazards in his environment. The results on the scale can range from 0 to 1. In the conducted research, the Cronbach's alpha coefficients for these scales were 0.918 and 0.986.

The second questionnaire was the Polish adaptation of the Oldenburg Burnout Inventory (OLBI) developed by E. Demerouti and A. Bakker (Demerouti and Bakker 2008). The questionnaire consisted of sixteen items and two sub-scales (each with eight items) of exhaustion and disengagement from the job. The respondents could use a 4-point scale, from 1 "I agree" to 4 "I do not agree." In each of the sub-scales, half of the statements were worded negatively and half positively. After reversing the answer, averages were calculated for each scale. The Polish version of the scale met the criteria of theoretical accuracy and had satisfactory reliability measures (Baka and Basińska 2016). In the conducted study, the Cronbach's alpha coefficient for disengagement equaled 0.67 and for exhaustion—0.85.

The third research tool was the self-reported International Physical Activity Questionnaires, the Long Form—IPAQ (www.ipaq.ki.se) (Biernat et al. 2007) with demographic characteristics as differentiating variables. The IPAQ questionnaire concerned physical activity of academics in the last 7 days divided into (1) physical activity at work, (2) physical activity related to transport, (3) domestic and gardening activities, (4) free time physical activity, (5) time spent sitting, and (6) time spent sleeping. According to the IPAQ Research Committee (2005), the habitual PA of academics was added into three levels as low (insufficient), moderate (sufficient), and high. When an physical activity of academics did not meet moderate or high requirements, it was classified as low physical activity. The level of sufficient physical activity included respondents whose weekly physical activity met one of three criteria: 3 or more days of vigorous-intensity activity of at least 20 minutes daily; 5 or more days of moderate-intensity activity and/or walking for minimum 30 minutes per day; or 5 or more days of any combination of walking,

moderate-intensity, or vigorous-intensity activities reaching a minimum of 600 MET-min/week. The category of high total activity required meeting one of the assumptions: at least 3 days of vigorous-intensity activity achieving minimum 1500 MET-minutes/week or 7 or more days of any combination of walking, moderate-, or vigorous-intensity activities accumulating at least 3000 MET-minutes/week. Intensity of physical activity is expressed in MET units (metabolic equivalent of task), where 1 MET corresponds to oxygen consumption at rest and equals 3.5 ml of oxygen per kg of body weight per minute (Biernat and Piątkowska 2014). Thanks to that it is possible to calculate weekly total energy expenditure (EE) connected to physical activity using the following formula:

$$EE = MET \times \text{weekly physical activity [min]} \quad (1)$$

Coefficients of intensity, equivalents of multiples of basal metabolism, were used to assess individual types of physical activity of academics listed in the questionnaire. Participation in the survey was voluntary (all the participants have expressed their consent). Their privacy was protected (anonymity and confidentiality).

The majority of the population of Polish academics was composed of women (58%) working as members of research and teaching staff during last academic year (78.3%). The second largest professional group of employees of higher education institutions were researchers of whom every tenth participated in the survey. Every second respondent had doctor's degree (52.51%) and every fifth finished habilitation (22.71%). 17.11% of the participants had master's degree and 7.67% were professors. Most of the participants were 35–44 years old (41.02%) or less than 35 years old (25.15%); duration of employment at a higher education facility was from 11 to 20 years (32%) or less than 5 years (22.1%). Only every tenth respondent declared employment duration of over 30 years. Almost three-fourth of the respondents were employed at a public facility and only every tenth declared employment at a private facility. Almost 60% declared realization of teaching load in the amount of more than 250 hours per year during the last two academic years (total of obligatory teaching hours, overtime, and additional contracts), while the rest declared teaching load of less than 250 hours per year. The employees of higher education facilities were also asked to determine their weekly work time, including the total of their teaching, research, and organizational activity. More than every second respondent spent less than 40 hours a week on academic work; however, only slightly less respondents declared more than 40 hours of work per week. Concerning their health, every second respondent marked health status as good and every third even very good. The academics were also asked to state their height in cm and weight in kg. Based on that the BMI was calculated. Although most of academics had normal body weight, but as much as 40.3% was overweight or obese. They were also asked about the number of days out of the 36 days of paid annual leave they dedicate for leisure. Almost 45% of academics reported dedicating only 14 days per year for leisure.

Statistical calculations were conducted using the IBM® SPSS® Statistics v. 51 software. Descriptive statistics included characterization of the analyzed variables

with determination of arithmetic means (M), medians (Me), extreme values (min, max), percentiles, and standard deviations (SD). To assess the significance of differences between the differentiated groups of employees, the independent-samples t-test and one-way ANOVA were used. In the case of nominal and ordinal variables, the significance of differences in distribution was tested using the Mann–Whitney U-test and Kruskal–Wallis test. In order to identify the interactive effect, regression analysis with dichotomic moderator was conducted.

4 Results

4.1 Physical Activity of Academic Teachers

The analyzed professional group turned out to be quite homogeneous as it comes to the level of PA. The majority (62.92%) of the analyzed Polish academics declared high level of PA, i.e., an equivalent of intense PA undertaken minimum 3 times a week of the value of at least 1500 MET-minutes/week or a combination of intense and moderate physical effort and walking minimum 7 times per week of the energy value of at least 3000 MET-minutes/week (Fig. 2). Every third surveyed academic declared moderate physical activity at a level of ≥ 600 MET-minutes/week. Lack of or insufficient physical activity was found in only 3.34% of the respondents.

The mean of the total (weekly) physical activity of the analyzed academics was 4228.50 (± 4811.8) MET-min/week. This means that on average an academic during the week either performed very intense (about 1.5 hours/day) or moderate (over 2.8 hours/day) activities or walked (about 3.4 hours/day)—which seems possible considering the representatives of the analyzed groups. It is worth noting that among the participants, the teaching staff was the group that stood out with the highest average

Fig. 2 Level of physical activity of Polish academics.

(Source: Source: own questionnaire survey [N = 329])

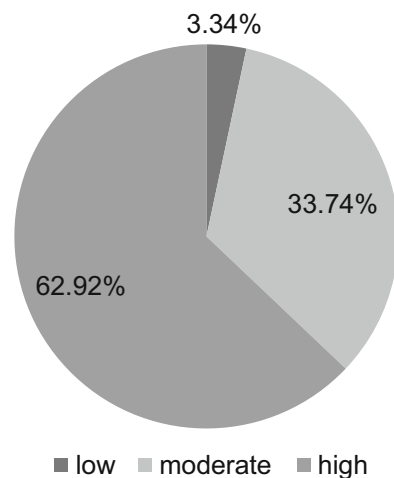


Table 1 Structure of the respondents' PA depending on job type

Job type during last two years	Work-related physical activity (%)		Transportation-related physical activity (%) [only walking]		House and garden works-related physical activity (%)		Leisure-time physical activity (%)	
	Active	Inactive	Active	Inactive	Active	Inactive	Active	Inactive
Technical staff	73.3	26.7	80.0	20.0	70.0	30.0	46.5	53.5
Doctoral students	44.4	55.6	100.0	0.0	52.8	47.2	40.7	59.3
Research and teaching staff	41.6	58.4	88.7	11.3	48.4	51.6	44.5	55.5
Teaching staff	43.1	56.9	100.0	0.00	55.9	44.1	37.3	62.7
Researchers	41.4	58.6	93.9	6.1	53.0	47.0	37.4	62.6
The total	41.8	58.2	90.3	9.7	49.8	50.2	43.2	56.7

Source: own questionnaire survey [$N = 329$]

energy expenditure of 5949 (± 3841.94) MET-min/week. This means that on average they walk for over 4.5 hour per day or are engaged in intense activity for almost 2 hours per day. The lowest mean of the total physical activity—3448.5 (± 1104.14) MET-min/week (i.e., 2.5 hour of walking per day)—was calculated for the technical staff. No statistically significant differences between the groups of different job categories were found ($p = 0.561$).

When analyzing the structure of the total weekly physical activity of academics, it became visible that the respondents were the most active during transportation that is moving from one place to another mainly on foot, quite a lot less on a bicycle, and during domestic and garden works (Table 1). Almost 90.3% of academics indicated physical activity was undertaken to move from one place to another as an important type of their physical activity (mainly walking for transportation). Only 16.7% declared cycling as an active form of transportation. The second most important type of their physical activity are house and garden works. Almost 50% of the respondents declared house-related physical activity. Other elements of the weekly physical activity included work-related physical activity amounting to around 41.8% and leisure-time activity dedicated to physical recreation and sport—to 43.2%. It is worrying, however, that despite high level of total habitual physical activity (IPAQ level) measured for last 7 days, relatively large group of higher education institutions' employees declared no leisure-time nor work-related physical activity. More detailed statistical analysis allowed us to notice that walking significantly contributed to the high scores in all of the analyzed components of physical activity. Among the analyzed professional groups, more than every second member of the teaching staff and researchers did not engage in any leisure-time physical activity.

Because health benefits resulting from participation in LPA have been well documented and proven by numerous reports (Leitzmann et al. 2007; Biernat and Piątkowska 2014), the authors focused on detailed analysis of this significant component of habitual physical activity among Polish academics. About 43% of the analyzed population of academics [$N = 329$] declared engaging in LPA (Table 2). Concerning the fact that academics are highly expected to act as a good

Table 2 Intensity of LPA declared by the surveyed Polish academics

Job type during last two years	Surveyed academics [N = 329]				No leisure-time physical activity				
	Leisure-time physical activity		Moderate activity		Intense activity		Walking		M
Technical staff	40.0	40.00	60.6	46.5	60.0	60.0	40.4	60.0	53.5
Doctoral students	33.3	27.78	61.1	40.7	66.7	72.3	38.9	72.3	59.3
Research and teaching staff	35.8	32.15	65.4	44.5	64.2	67.3	34.6	67.3	55.5
Teaching staff	17.6	23.53	70.6	37.3	82.4	76.5	29.4	76.5	62.7
Researchers	42.4	12.12	57.6	37.4	57.6	87.9	42.4	87.9	62.6
The total	35.5	29.57	64.5	43.2	64.5	70.0	35.5	70.0	56.7
Descriptive statistics	Chi ² = 3.15; p = 0.53	Chi ² = 6.68; p = 0.57	Chi ² = 1.19; p = 0.88		Chi ² = 3.15; p = 0.53	Chi ² = 6.68; p = 0.57	Chi ² = 1.19; p = 0.88	Chi ² = 6.68; p = 0.57	Chi ² = 1.19; p = 0.88

Source: own questionnaire survey [N = 329]

Table 3 Energy expenditure on leisure-time physical activity in the analyzed population of academics

LPA [MET-minutes/week]	<i>M</i>	Standard deviations (SD)	Min value	Max value	Percentiles		
					25	50 (Me)	75
Walking (3,3 minutes days) total MET-min/week	408.5	627.2	0.0	4158.0	0.0	198.0	660.0
Intense physical activity (8,0 minutes days) MET-min/week	470.0	875.9	0	5760	0.0	0.0	720.0
Moderate physical activity (4,0 minutes days) MET-min/week	153.7	364.0	0	3360	0.0	0.0	180.0
Total leisure-time physical activity MET-min/week	1032.4	1336.3	0.0	9558.0	76.5	648.5	1443.7

Source: own questionnaire survey [$N = 329$]

example and that face high work-related demands, this result has to be considered unsatisfactory. In addition, this activity comprised mainly of walking which was declared by 64.5% of the respondents. Less frequently the academics engage in intense (35.5%) or moderate (29.7%) physical activity. It is worth noting that members of teaching and research and teaching staff were walking more often during their leisure time than other groups of academics, i.e., 70.6% and 65.4%, respectively. Intense physical activity was the most frequently declared by researchers (43.4%) and technical staff (40%). This might be related to researchers conducting field studies with the support of technical staff. These differences were not statistically significant. These results prove that the work of academics is mainly intellectual.

Moreover, energy expenditure on LPA declared by the respondent was calculated (Table 3). The mean of the total (weekly) leisure-time physical activity of the analyzed academics was 1032.4 (± 1336.3) MET-min/week.

This means that on average academics walked c.a. half-hour a day and 2 days a week they engaged in c.a. 45-min intense activity. Moderate physical activity was much less frequent; every fifth academic dedicated c.a. 75 minutes a week for this type of activity. The problem is a large amount of time spent sitting. Almost 53% of academics on average sit more than 4 hours a day, including transport, which is inconsistent with the recommendations of the WHO. Research and teaching staff and doctoral students spent the most time sitting, i.e., 492.75 minutes a day (± 329.09) (on average, 8 hours and 20 minutes) and 482.91 minutes a day (± 335.95) (over 8 hours), respectively. This might be connected to the increased number of requirements for academic advancements.

4.2 *Leisure-Time Physical Activity of Academics vs. Work-Related Hazards and Professional Burnout*

In order to verify Hypothesis 2 concerning leisure-time physical activity being a variable moderating the relationship between work-related hazards and professional burnout, the surveyed academics were divided into two groups: more and less physically active during leisure time (Table 4). Reports in this field present many different classifications proposed, for example, by Biernat et al. (2012), Biernat and Piątkowska (2014), and Puciato et al. (2013). Such demanding classification criteria result from several factors, but mainly from the specificity of the analyzed population. Academics comprise a professional group connected to high social prestige but also high expectations and influence on education and upbringing of young people. The group of analyzed academics turned out to be quite homogeneous regarding structure of physical activity. More than 60% of respondents were classified into the high level of physical activity group according to IPAQ. The proposed classification also results from unfavorable civilization trends connected to increasing sedentary behavior threatening the improvement of physical activity of Polish society. As classification's criteria, the WHO and IPAQ Scientific Committee's recommendations were used.

Comparison of more and less active persons did not show any significant differences between numbers of perceived hazards as well as levels of professional burnout (Table 5). In both groups more job content-related hazards than job context-related hazards were identified. On the basis of the Polish standard of the questionnaire (Baka and Basińska 2016), the level of disengagement in both groups received

Table 4 Criteria of classification to different leisure-time physical activity groups

Groups of academics	Criteria of classification and measurement indicators
More active	Persons who are more physically active during leisure time, doing more than the minimum recommended by the WHO, and accumulating different types of PA to improve their health. Physical activity at least 7 times a week mostly 60 minutes of moderate PA or walking daily. ^a Persons whose LPA is ≥ 1500 MET-min/week.
Less active	Persons who are less physically active or passive during leisure time, engaging in PA to a minimal extent or irregularly participating in physical activity. Persons whose LPA is ≤ 1500 MET-min/week.

Source: own elaboration based on [IPAQ Research Committee 2005; Tudor-Locke and Basset 2004]

^aAlthough WHO experts recommend adults moderate physical activity and/or walking for at least 30 minutes 5 times a week, or a combination of physical efforts with a minimum of 600 MET-min/week, it is well known that regular and more frequent participation in physical activity gives better health results. However, there is no consensus among scientists on the exact amount of physical activity that determines the maximum health benefits. Tudor-Locke and Basset (2004 s. 11) and others argue that the base amount is about 1 hour of activity related to daily living and a minimum of 30 minutes to 60 minutes of physical activity during free time makes our lifestyle more healthy.

Table 5 Perception of hazards and level of professional burnout depending on the LPA in groups of academics

	Less active during leisure time		More active during leisure time		Independent-samples t-test	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	Two-way significance
Perceived job content-related hazards	0.60	0.22	0.61	0.22	-0.593	0.554
Perceived job context-related hazards	0.43	0.27	0.40	0.27	0.792	0.430
Professional burnout (the total)	2.41	0.49	2.35	0.48	1.078	0.283
Disengagement	2.29	0.47	2.29	0.43	-0.058	0.954
Exhaustion	2.54	0.59	2.40	0.61	1.758	0.081

Source: own questionnaire survey [$N = 340$]

Table 6 Coefficients of correlation between the number of perceived hazards and the level of professional burnout in groups of academics more and less physically active during leisure time

Analyzed group	Work-related hazards	Disengagement	Exhaustion	Professional burnout (the total)
Less active during leisure time	Perceived job content-related hazards	0.195**	0.332**	0.298**
More active during leisure time		0.151	0.211	0.201
Less active during leisure time	Perceived job context-related hazards	0.453**	0.572**	0.569**
More active during leisure time		0.372**	0.339**	0.381**

Source: own questionnaire survey [$N = 340$]

** correlation significant at the level of 0.01 (two-sided)

the sten score of 5 while the sten score of exhaustion was 6 in the less active group and 5 in the more active group (the difference turned out to be statistically insignificant).

Although employees that were more and less active during leisure time did not differ in regard to their perception of hazards and professional burnout, the question whether the fact of being physically active during leisure time could differentiate the relationship between perceived hazards and professional burnout remained open. Thus, the first step was to assess the strength of this relationship in every group. The analysis of the obtained coefficients of correlation showed stronger relationship between hazards and professional burnout components in the group of less physically active employees (Table 6). The relationship of job context-related hazards was stronger than the one of job content-related hazards in both groups.

Table 7 Regression model including interactive variable

Dependent variable: exhaustion	<i>B</i> (non-standardized coefficients)
Leisure-time physical activity	-0.056* (0.32)
Perceived job context-related hazards	0.272** (0.32)*
Int_leisure-time activity * Perceived job content-related hazards	-0.069** (0.32)
Constant	2.473*** (0.32)
Observation	340
<i>R</i> -squared	0.279

Robust standard errors (for coefficients) in brackets

Source: own questionnaire survey [$N = 340$]

***, **, and * indicate the statistical significance at the 1, 5, and 10%, respectively

To analyze the significance of leisure-time physical activity as a variable moderating the hazards/professional burnout relationship, regression analysis with interaction was conducted. In total, four analyses were conducted: perceived job content-related hazards/exhaustion, perceived job content-related hazards/exhaustion, perceived job context-related hazards/disengagement, and perceived job context-related hazards/exhaustion; a dichotomic low/high leisure-time physical activity moderator was introduced to every analysis. Only in the case of one model referring to the perceived job context-related hazards/exhaustion relationship, statistically significant moderating effect of LPA was found (Table 7).

The conducted analyses showed that LPA was a significant moderator of only one of the four analyzed relationships that is why it is not possible to adopt the second hypothesis. It is worth noting that the identified moderating effect is related to leisure-time physical activity decreasing the relationship between hazards and exhaustion. It can therefore be assumed that leisure-time physical activity allows employees to regenerate faster and to regain the energy lost while working, however, only in the case of job context-related hazards. In the case of psychosocial hazards having their source in harder factors, such as a number of tasks, physical conditions, or time pressure, similar effect was not observed. The relationship between job context-related hazards and exhaustion in both studied groups is represented by the following two regression equations:

$$(LPA = \text{low}) \text{ Exhaustion} = 1.27 * PWCXH + 1.99 (R^2 = 0.328) \quad (2)$$

$$\text{Beta} = 0.572, \text{ parameters sig. below } 0.01$$

$$(LPA = \text{low}) \text{ Exhaustion} = 0.76 * PWCXH + 2.1 (R^2 = 0.115) \quad (3)$$

$$\text{Bet} = 0.339, \text{ parameters sig. below } 0.01$$

5 Conclusion

It may be concluded that both job content- and job context-related hazards are significantly correlated with stress and professional burnout. Academics perceived more job content—than job context-related hazards, but the latter were strongly correlated with professional burnout. The analyzed professional group showed an average level of professional burnout both in terms of exhaustion and disengagement. It was identified that although the total weekly physical activity of every second academic in Poland is high, almost 56% did not participate in recreational activity or sports during leisure time. This high level of activity was mainly connected to walking to get from one place to another and to some extent to house works. As a result, the first hypothesis concerning insufficient LPA of academics was confirmed. The key objective of the analysis was to answer a question if LPA can comprise a moderating variable of the relationship between perceived work-related hazards and professional burnout. We expected that physical activity would become a coping strategy helping to maintain employee's well-being. However, moderating role of physical activity was found in only one of the four analyzed relationships—only in the case of the job context-related hazards/exhaustion relationship the moderating role was significant.

Moreover, promotion of physical activity in the workplace can play an important role in preventing burnout but only in a situation where the source of burnout is related to job context hazards. The research results indicate that work-related and leisure-time physical activity in the amount recommended by the WHO (at least 7 times a week) needs to be promoted among academics. An important tool for promotion of physical activity in this professional group could be a special workplace pro-health program that would include increasing the frequency of physical exercise, commuting to work on a bicycle, or offering various recreational activities in the workplace. This research should be treated as the first step of learning the real role of physical activity in the well-being of employees of higher education facilities.

The next step should include the analysis of physical activity's character, frequency, duration, types of PA, with a particular focus on physical activity at work. In the next steps, analysis of the character of physical activity should be done. Moreover, due to quite high participation of academics in the total PA in comparison to other professional groups, more objective measuring tools should be considered, e.g., accelerators, sports tracking devices (the so-called training watches or activity tracking bands), or commercial GPS loggers and smartphones using the Global Navigation Satellite System (GNSS).

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Part II

Management

Project Risk Culture in Micro- and Small Family-Owned Enterprises: A Stakeholder Perspective



Joanna Sadkowska

Abstract Literature studies confirm that family-owned enterprises do pay attention to their stakeholders. This chapter explores the phenomenon of project risk culture in micro- and small businesses, which are owned by families. Special attention has been directed to the relationship between project risk culture and business characteristics. Project risk culture has been viewed from the perspective of these firms' approach toward their external stakeholders. Binary logistic regression was used to study this phenomenon. The results of this study indicate that family involvement is an important factor influencing project risk culture in the studied entities. The findings of the research emphasize the role of family members' involvement in business in building project risk culture. They also support the current discussion on family involvement in shaping economic and social behaviors of the studied businesses.

Keywords Project risk culture · Project management · Family enterprise · Family involvement · Stakeholder analysis · Stakeholder engagement · Poland

1 Introduction

One strategic finding from the research of micro-, small, and medium enterprises has been that these entities play a significant role in stimulating economic growth in almost every economy where they constitute the majority of business entities (Hallberg 1999). The specificity of this group of businesses means that they are majority owned and managed by families. The highly significant role of family firms in almost all countries is not to be doubted (Astrachan and Shanker 2003), especially as in many cases they are able to generate better economic results than non-family companies. This ability is attributed among others to the positive effect of family

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involvement in business. For example, Zahra (2005) confirmed that the involvement of the owning family means that this firm has developed a more entrepreneurial approach. Family-owned companies are also regarded as more likely, compared to non-family firms, to provide wealth and to deliver products for the good of the community (Gallo 2004). However, in spite of the fact that family businesses have significant potential in terms of building strong competitive position in a long-term perspective, it cannot be excluded that the factor of the family involvement might also have a restricting influence.

Despite a growing number of theoretical and empirical studies in the area of family firms, research areas that require careful scientific attention can still be identified. A niche requiring further studies is the area of project management activities in relation to project cultural aspects as viewed by the factor of family involvement. This has already been underlined by Dyer (2006) who emphasized that the factor that still requires more clear articulation is the “effect of family” and family influence on business activities of these firms. Similarly, Cennamo et al. (2012) have noticed that there is still relevant silence in literature whether and why family businesses actively engage with their stakeholders.

This chapter tries to initiate the process of filling in the indicated gap by exploring project risk culture from the perspective of how the studied family-owned businesses engage in stakeholder-related activities. It follows the scientific approach proposed by among others Astrachan et al. (2002) where the bipolar treatment of family firms in which these entities are compared to the non-family enterprises has been substituted by the approach where the factor of family involvement with its mediating or moderating role is used.

The chapter is organized as follows. Section 1 describes the concept of project management formula in light of business development challenges. Section 2 then presents project risk culture in relation to risk culture. Section 3 explores the studied phenomenon empirically. The chapter is closed by discussion and conclusions. Finally, limitations and implications for further research were addressed.

This chapter adds to the existing body of literature by exploring the essence and role of project risk culture. From a practical perspective, it provides some evidence on how micro- and small family-owned businesses “use” project risk culture in terms of their approach toward stakeholder issues. As a consequence, family firm managers can become more aware of the “existence” of project risk culture and its influence on these firms’ activities toward their stakeholders.

2 Theoretical Development

2.1 *Project Management and Its Role in Business Development*

For the last twenty years, there has been a radical increase in the use of projects defined following the definition by the Project Management Institute (2008, p. 5) as “a temporary endeavor which is undertaken to create a unique product, service or result.” Project management is used in organizations as a “solution” which, by organizing complicated works in a structured manner, enables and facilitates gaining better effectiveness. Likewise, the picture of project has radically changed from the **twentieth** century, from a “tool approach” to a “temporary organization approach” where the aspects of creating long-term value are highlighted (Svejvig and Andersen 2015). Following this, projects are nowadays seen to a higher extent than before as social processes, with more focus on building effective relationships with the base organization and with project environment comprising many different stakeholder groups.

In spite of the fact that organizations are able to plan and implement project works in a more effective way, there are still a significant number of projects that fail. The report by Standish Group confirms that more than 30% of projects will not be completed. At the same time, in case of more than 50% of the projects their budget will be radically exceeded (The Standish Group 2014). What has to be emphasized in light of the above remarks is the fact that such a high rate of project failures is independent of factors such as project type, duration, and sector.

From the perspective of micro-, small, and medium enterprises, due to their strategic role in economy, it is crucial to identify and study the elements that can increase the probability of project success. The success of a project is also influenced by a set of different factors. For many years, the attention of researchers has been directed first of all to factors related to project main assumptions such as project scope, quality, time, and budget. Further studies have shown, however, that the final project outcome is influenced by elements such as leadership style, satisfaction of employees, and the commitment of workers (Dyer 1986; Sorenson 2000). Similarly, the way of scanning project environment to find the needed information has also turned out to be of importance (Aaltonen 2011).

2.2 *The Essence of Risk Culture in Organizations*

Risk culture is a phenomenon the importance of which cannot be overlooked. It “exists” in every organization no matter what the character of the activities of this entity is. Although the concept of risk culture is, as some authors underline (Davidson et al. 2015), relatively new, it might have a significant influence on the functioning and development of businesses and other institutions. Risk culture can

Risk culture			
Risk competences	Motivation	Relations	Organization
learning	risk orientation	communication	strategy and objectives
skills	performance management	personal responsibility challenge	values and ethics
recruitment and induction	accountability	senior leadership	policies, procedures, processes

Fig. 1 Risk culture: essence and “structure.” (Source: IFC 2015, pp. 3–4)

be described as a cultural, organizational, and social phenomenon which reflects the approach that members of an organization have toward risk. Risk culture, by reflecting risk management processes that take place in an organization, is also linked to risk governance approach and processes. The essence of risk culture has been depicted in Fig. 1.

As depicted in Fig. 1, risk culture is strictly connected with processes, procedures, and activities which are undertaken in an organization. It cannot be developed without intangible factors such as relationships among employees, communication, and trust. A factor that is of strategic significance is the awareness that members of particular organizations have. As the International Finance Corporation (2015) underlines in the report “Risk culture, risk governance and balanced incentives” risk awareness should resonate across all levels. In the literature, the following dimensions of risk culture have been identified: (1) tone from the top, (2) accountability, (3) effective challenge, (4) and incentives (Davidson et al. 2015). The aforementioned dimensions refer to the phenomenon described as risk appetite that characterizes particular organizations. Likewise, they reflect the specificity of financial organizations, the functioning of which is supervised by the particular regulating institutions.

The International Finance Corporation (2015) has identified the set of best practices the implementation of which can help in developing effective risk culture. They include common values, tone at the top, common risk language application of risk management practices, timely, transparent, and honest risk communications, risk management responsibilities, challenging discussion on risk management, risk reporting, and whistle-blowing. While analyzing the above elements, it is worth noting that they cover different areas referring to the functioning of an organization. Including and binding together elements referring to communication, risk-taking approach, trust, and responsibility increases the probability of creating a mature risk culture. In summary, it is first of all worth emphasizing that risk culture is a complex and multi-area phenomenon which exceeds risk-taking processes that take place in an organization. As a consequence, it has to be analyzed not only from the perspective of actions, activities, and processes but also perceptions and reactions that members of an organization take toward different internal and external phenomena.

2.3 Project Risk Culture

Although the phenomenon of risk culture has already received attention from researchers and practitioners (IIF 2009; IRM 2012a, b; PriceWaterhouseCoopers 2015), there can be identified other risk-related phenomena that have not been studied that carefully. Surprisingly, little research, if any, has been so far devoted to project risk culture. Project risk culture cannot be considered equivalent to organization’s risk culture due to crucial differences between an organization and a project. The draft of the aforementioned differences has been presented in Fig. 2.

The main assumption regarding project risk culture, in contrast to risk culture, is that project risk culture “originates” mainly from the project team. As a consequence, it is characterized by different, than in the case of risk culture, time frame, volatility, range of influence. Project risk culture has a shorter life cycle as it can change in different projects based on their specificity and duration.

Project risk culture can be described as a cultural, organizational, and social phenomenon that can be identified in those organizations which have managed projects. Project risk culture reflects the approach that project team members, project leaders, and other project stakeholders, e.g., project steering committee, have toward project risks. However, the main project risk culture “players” are members of a project team. The particular elements which form project risk culture have been shown in Fig. 3.

The multifaceted character of project risk culture results from the fact that it is shaped by two streams of factors characterized either by tacit or explicit character. The explicit factors are related to project members’ knowledge, skills, and competences. These elements can be observed; hence, they are easier to identify. The essence of project risk culture is, however, created by the factors having tacit character such as beliefs, emotional norms, and other mental and emotional assumptions. The fact that in most cases tacit elements are non-observable is responsible for

Project risk culture	differences based on:	Risk culture
	temporariness- time frame	
	basic area of influence	
	basic entity- organization/project	
	‘source’ of culture	
	range of influence	
	life cycle	
	volatility	

Fig. 2 Project risk culture versus risk culture. (Source: Own elaboration based on Sadkowska 2019)

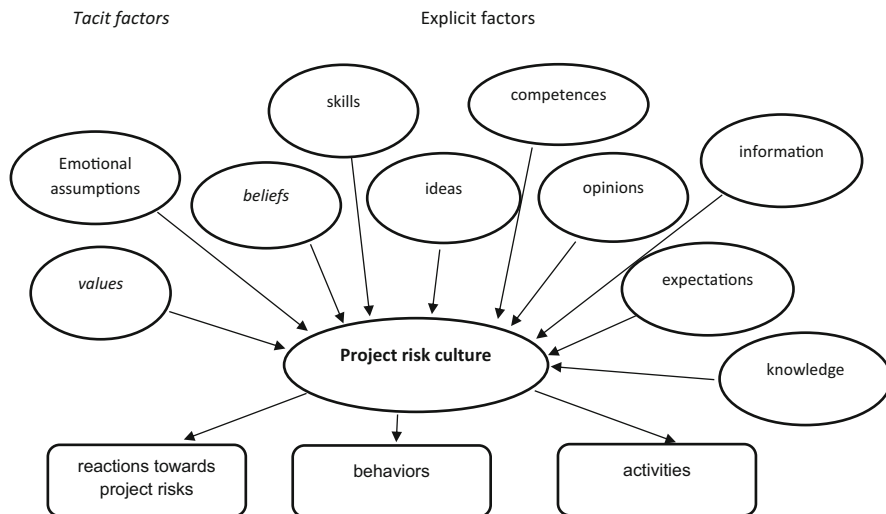


Fig. 3 Project risk culture components and “effect.” (Source: Own elaboration based on Sadkowska 2019)

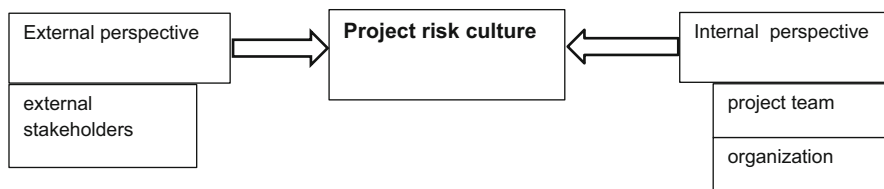


Fig. 4 Project risk culture perspectives. (Source: Own elaboration)

the situation that identifying and shaping project risk culture might be very difficult or impossible. Project risk culture can be viewed and studied from two basic perspectives which have been depicted in Fig. 4.

As shown in the above figure, project risk culture can be viewed from two basic perspectives: the internal and the external one. The internal perspective refers to project members—their approach toward project risks which is described among others by reactions, behaviors, and activities undertaken when confronted with risks. This approach is, as mentioned above, a “result” of these people’s emotional and mental attitudes which are related to their beliefs, expectations, values, and assumptions. In this chapter, the second external perspective has been employed. It refers to project external stakeholders. As project stakeholders are in most cases an important “source” of project risk (Cuppen et al. 2016; Vrhovec et al. 2015; Yang et al. 2016), the approach an organization choses toward these groups is crucial for project success. The company’s approach toward external stakeholders related to its project risk culture has been depicted by two factors—whether this enterprise analyzes stakeholders and whether they are engaged in projects.

3 Objectives and Focus

Managers often look at their business environment in a different way and, as a result, pay attention to very different parts of it (Finkelstein et al. 2009). This might result in two basic consequences. First, the company does not take into consideration their external stakeholders in the context of opportunities and difficulties they create in the area of project management. Second, stakeholder analysis is not conducted and stakeholders are not engaged in the projects managed by these business entities. At the same time, as Cennamo et al. (2012) emphasize, there is still relatively limited literature on why some firms care about their stakeholders more. Project risk culture can be one of the areas worth searching an answer. Likewise, taking into consideration the specificity of family-owned business related to the role of founders might also be useful to study the role of family involvement in the context of its influence on this phenomenon.

This chapter explores the phenomenon of project risk culture seen from the perspective of how the studied family-owned businesses engage in stakeholder-related activities. Two research questions have been formulated: (1) Does family involvement in business activities influence this firm’s approach toward conducting stakeholder analysis and engaging stakeholders in projects? (2) Do the factors of company’s size and age influence the above phenomenon?

The main assumptions of the research model are shown in Fig. 5.

Family involvement is measured by two elements: (1) the generation which currently manages the company and (2) the number of members from a family who are actively engaged in this firm’s activities. The age of the studied firms has been measured by the number of years this company has been performing business activities in a market. The company’s size has been measured by the number of

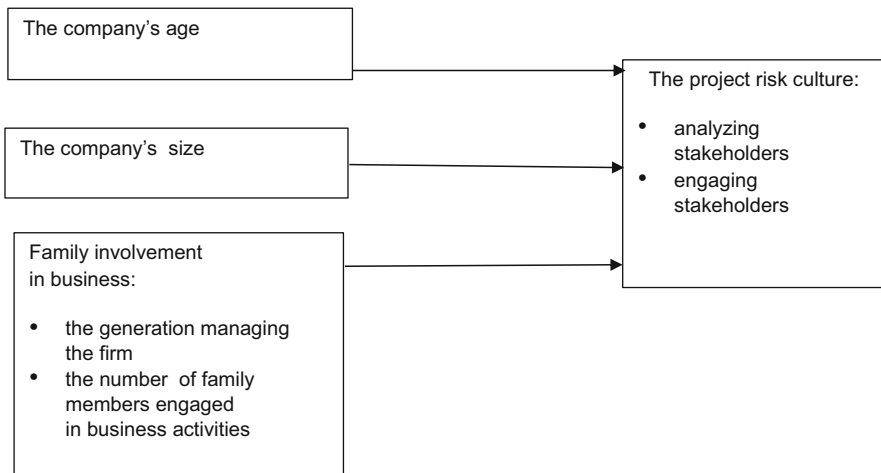


Fig. 5 The conceptual model. (Source: Own elaboration)

employees. The definition by the European Commission was used (2015). According to the above document micro-enterprise is the one with the employment below 10 workers, while the small company employs fewer than 50 workers.

4 Research Process and Sample Characteristics

For the purpose of the study, the definition proposed by Freeman (2010) was used to determine who stakeholders of an enterprise are. External stakeholders were identified as those stakeholders whose origin is outside an enterprise. They comprise contractors, subcontractors, suppliers, sub-suppliers, other partners, competitors, local communities, and other individuals, groups, and organizations that an enterprise comes into contact with.

The literature studies were the first step in the research process. In order to increase the probability that the literature studies will be conducted thoroughly, the structured literature review was employed. Following the conceptual model proposed by Svejvig and Andersen (2015), the analysis of literature was conducted in four stages. The first stage covered, as the cited authors propose, the definition of review scope. In the second stage, the conceptualization of the topic was done. The next two stages covered literature search and literature analysis. The investigation concentrated in the four main areas such as family businesses, project management, risk management, and culture. As a result, a number of studies were selected and used as the basis for further analyses.

The research has been conducted using binary logistic regression. The questionnaire was used as the tool for gathering the information. The questionnaire was distributed among the Polish enterprises which fulfilled the definition of a family firm. In addition, in order to increase the validity of the results obtained, every potential respondent was asked to confirm that they regarded themselves as a family enterprise. One of the main assumptions of this study was to reflect the specificity of family-owned businesses in the emerging economies of Eastern Europe. For this reason, taking into consideration the fact that in most economies the majority of family enterprises are micro- and small companies managed by the first or the second generation (KMU Forschung Austria 2008; PARP 2016) only those businesses were included in the study. An additional criterion was the fact that at the time of the survey, a company was involved in managing a project. The sample covered 61 family-owned firms ($N = 61$) managed by the founder's generation ($n = 45$) or by the second generation ($n = 16$). The majority of the studied family businesses were micro-enterprises employing 9 and fewer employees ($n = 40$). 21 companies employed between 10 and 49 workers. Likewise, in most of the studied firms fewer than 3 family members were engaged in its business activities ($n = 43$). In 14 firms 3–5 family members were engaged, while the activities of 3 companies were supported by 6–10 people. In 1 family business more than 10 members from a family were involved. While analyzing the structure of the studied family-owned businesses, it is worth noting that most of these firms have been functioning in a

market from 11 to 25 years ($n = 22$) or from 6 to 10 years ($n = 13$). 10 companies have been in the market longer than 25 years. Only 4 businesses have been founded earlier than 1 year before. Likewise, “the age” of 12 companies was between 1 and 5 years. The fact that the majority of the studied family businesses are mature in age is interesting especially in terms of the relation to the phenomenon of project risk culture and its maturity.

5 Results

As mentioned in the previous section, in this chapter an attempt has been made to describe project risk culture from the perspective of external stakeholders. For this reason, attention has been paid to two factors: whether the studied family businesses have analyzed their external stakeholders and whether they have engaged them in their project formula operations (Table 1).

Out of 61 studied family firms, 60 were able to identify their approach toward external stakeholders. Respondent from 1 company did not mark any answer. This might suggest lack of certainty what answer should be indicated. This also allows us to think that in this company most probably no stakeholder management tools are employed. Likewise, there is no cooperation with stakeholder groups. The majority of the studied family firms employed stakeholder analysis. However, in the case of 22 businesses using this tool was not equal to undertaking cooperation with particular stakeholder groups. It is also worth noting that 7 respondents were not able to determine whether stakeholder analysis was performed and whether they engaged their external stakeholders. Reasons for such a situation are worth paying further attention. In the next part of the chapter, the relationship between stakeholder approach and family business characteristics is depicted. Table 2 presents the relationship between stakeholder approach and family business characteristics.

The results of the χ^2 analysis revealed that the only factor that might have a potential significance in explaining the studied phenomenon is the number of family members who have been engaged in company’s business activities. Other factors such as company’s age, generation managing the company, and the number of employees have had a marginal significance.

Although the aforementioned analysis did not reveal statistically significant correlations, the relationship between the firm’s age and its approach toward

Table 1 Characteristics of the stakeholder approach in the studied businesses

Variable	Frequency	%
Stakeholders are analyzed and engaged in projects	24	40.00
Stakeholders are analyzed, but they are not engaged in projects	22	36.66
Stakeholder analysis is not performed	7	11.67
It is difficult to say	7	11.67

Source: Own elaboration and calculations

Table 2 The stakeholder approach versus family business characteristics: the summary of crosstab correlations

Variable	Frequency				Independence χ^2
	stakeholders are analyzed and engaged in projects	Stakeholders are analyzed but they are not engaged in projects	Stakeholder analysis is not performed	It is difficult to say	
Generation managing the company:					0.894; p = 0.827; V = 0.121
First generation	18	15	6	5	
Second generation	6	7	1	2	
Number of family members engaged in business activities:					11.070; p = 0.271; V = 0.395
Fewer than 3 members	18	15	4	5	
3–5 members	4	6	3	1	
6–10 members	2	1	0	0	
More than 10 members	0	0	0	1	
Age of the company—years in the market:					9.106; p = 0.694; V = 0.363
Shorter than 1 year	0	2	1	0	
1–5 years	5	4	1	2	
6–10 years	6	3	2	2	
11–25 years	9	7	3	3	
Longer than 25 years	4	6	0	0	
Number of employees:					2.155; p = 0.541; V = 0.186
9 employees and fewer	17	15	4	3	
10–49 employees	7	7	3	4	

Source: Own elaboration and calculations
p probability value, *V* Cramer's *V* measure

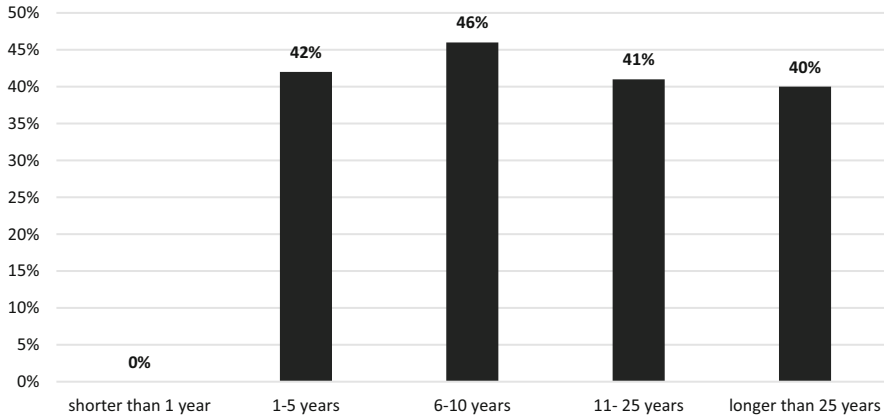


Fig. 6 The studied firms’ approach to engaging stakeholders versus their age. (Source: Own elaboration)

Table 3 Analyzing and engaging external stakeholders by the studied family businesses: the results of the binary logistic regression

Predictor	B	s.e.	Level of significance	exp (B)
Number of family members engaged in business activities	-0.172	0.412	0.676	0.842

Source: Own elaboration and calculations

B unstandardized regression coefficient, *s.e.* standard error, *exp (B)* odds ratio

engaging stakeholders is worth a closer look. The figure below shows the firms’ age measured by their presence in the market and their activities toward engaging stakeholders.

Studying the results presented in Fig. 6, it is interesting to see that none of the companies that have been conducting business activities in a period shorter than 1 year engaged their external stakeholders though some of them employed stakeholder analysis. On the contrary, however, the older businesses both analyzed and engaged particular stakeholders in their project activities. Table 3 shows the results of the binary logistic regression.

The results of the binary logistic regression revealed that the increase in the number of family members helping in performing business activities decreases the chance that these businesses engage their external stakeholders in projects they manage. While analyzing the above results, it has to be emphasized, however, that this factor, though important, is not statistically significant in explaining the role of family members engaged in business activities. The Hosmer–Lemeshow χ^2 test revealed no significant differences between the model and the observed data ($\chi^2 = 1.022$; $df = 1$; $p = 0.312$).

6 Discussion and Conclusions

From the point of view of stakeholder theory, the fact of engaging stakeholders in firms' business activities is of significance. As Freeman (2010) stated in his landmark book "business works because the interests of all of these stakeholders can be satisfied over time." The analysis performed in this study has shown that the studied businesses analyzed and engaged their external stakeholders on average in 40%. This result was independent of the generation managing the company as well as the size of this company measured by the number of employees. Additionally, it might be interesting to observe that in the case of those businesses which involved from 6 to 10 family members, 2 companies out of 3 participating in the study engaged their stakeholders. However, due to the fact that this result referred to a very limited number of enterprises, it can be treated only as an interesting example which requires further analyses. Likewise, in the case of the company where more than 10 family members participated in its business activities, stakeholders were neither analyzed nor engaged in projects. This finding is especially interesting as the respondent from this firm confirmed that he or she did not have knowledge whether stakeholder analyses were performed. This might indicate that such a high number of family members engaged might cause chaos in this firm's daily operations.

Another interesting finding is that the majority of the studied family firms employed stakeholder analysis. However, in the case of 36.10% of businesses, using this tool was not equal to undertaking cooperation with stakeholder groups. It is also worth noting that 7 respondents were not able to determine whether stakeholder analysis was performed and whether they engaged their external stakeholders. While analyzing the results of the study, the relationship between stakeholder engagement and the age of the company is worth paying attention to. It is interesting to see that none of the studied family companies which have been functioning in a market shorter than 1 year engaged their external stakeholders though they performed stakeholder analysis. By comparison, the number of businesses engaging with stakeholder groups grew together with the length of their functioning in a market. In all other groups of the studied businesses, the percentage of firms which engaged their stakeholders was 40% or higher. This finding should be analyzed in relationship to the phenomenon of business maturity and project management maturity that a company gains the longer it conducts its business activities in project formula.

Project success is no longer evaluated with "iron project triangle" measures, but to a growing extent with the influence that project outcomes have on the "social area." This social area is related first of all to stakeholder satisfaction (Mazur et al. 2014). As project management success is of high significance to managers, business owners, and other stakeholder groups, it is important, as Shenhar and Dvir (2008) suggest, to adopt a holistic view on project's entire landscape. This includes also the significance of recognizing the complex web of relationships, not only in the companies (Zahra 2005), but with the external environment as well. In light of the results of this study, it is of significance to identify and recognize project risk culture

in the context of its influence on reactions, behaviors, and activities taken by project team members and other employees who are engaged in projects.

This study represents the first step in the research direction of project risk culture in micro- and small family-owned enterprises and still much remains to be done. The first limitation is the number of enterprises included in this study. A higher number of companies would enable to see the research problem from a broader perspective. The second limitation is the geographical area. It would be interesting for example to compare project risk culture in family enterprises performing their business activities in different national cultures. From the perspective of project management tools, it would be inspiring to see whether and what type of family companies use project management methodologies.

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Business Social Network (BSN): Does the Business Escape from Reality Impossible?



Nikolay Sterev, Monika Sabeva, Ralitza Zlateva, and Veronika Dimitrova

Abstract The chapter aims to define and analyze the preconditions for attending to the global business social networks (BSNs) and to discover attitudes of business managers for participation in open-source business social networks (BSNs). The data for analysis are found by deep interview techniques within Bulgarian business managers. The analysis is based on descriptive analysis of the levels of the business social networking's acceptance and statistical analysis of its dependence by some business demographic characteristics, e.g., size of business, type of city, and levels of management structure. The chapter adopts the BSN model which is the key for business success in the next Web 5.0 Society not just for the developed countries but also for the developing ones. In this context, the results of the empirical analysis help to understand the business attitude of managers to attend social business networking, particularly in Bulgaria. Three main pillars of social networking inclusion, trust, community, and information, are discussed. Furthermore, the smaller business is less ready to share business information because of less trust of the other businesses as well as marginalizing their role in the community. Not surprisingly, the findings explain the low participation in business networks of Bulgarian businesses and gives the main point of further development of the business models for developing countries—particularly in Bulgaria.

Keywords Social business network · Business digitalization · Web 5.0 · Industry 4.0

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1 Introduction

As the new information and communications technology (ICT) has developed too fast and the digitalization of the business passed through Internet 1.0 to Internet 5.0, and the real business has grown from Industry 2.0 to Industry 4.0, where are the boundaries (limits) of the business digitalization? The key point of the answer is up to transfer of the big data between different companies and individuals.

The development of world web technologies is passed from Web 1.0 in 1996 to Web 4.0 in 2018 and Web 5.0 in 2020 (expected). According to Berners-Lee and Fischetti (1999), Patel (2013), Benito-Osorio et al. (2013), Kujur and Chhetri (2015), Sindhu and Chezian (2016), Zlateva (2014, 2015), and Naik and Shivalingaiah (2008), the evolution of Internet could be summarized:

- Web 1.0: It is “read-only web” that is found by a small number of writers creating Internet pages for a large number of readers. Web 1.0 technologies include core web protocols: HTML, HTTP, and URL.
- Web 2.0: It is “read-write web” that is found by enlarging the number of writers for the large number of readers. Web 2.0 technologies include weblogs (blogs), social bookmarking, wikis, podcasts, RSS feeds, and web APIs.
- Web 3.0: It is “read-write-execute web” that transforms the Internet into a *global database*. Web 3.0 technologies include non-browser applications, artificial intelligence technologies, the semantic web technologies, the geospatial web technologies, or the 3D web technologies.
- Web 4.0: It is “clever on reading web” that is based on usage of ultra-intelligent electronic machines. It is based on *Global business transparency*. Web 4.0 is the first step of migration from the physical (real) business to the online functionality business. The intelligent web is an assistant to virtual reality based on highly intelligent interactions between machines and humans.
- Web 5.0: It is “open, linked and intelligent web = emotional web” that is based on the establishment of business emotive systems through neurotechnologies allowing interaction and emotion exchange in real time on Internet. Web 5.0 technologies include Symbionet web, Smart Communicator (SC), 3D virtual world.

According to the development of web technologies, the business is in the stage of Web 4.0 that the artificial intelligence has already started. So, the business has to think about how to leave the real world.

A comparison between different stages of Web development is given in Fig. 1.

According to Fig. 1, social business networking is based on the Web 3.0 instruments as social networks, social media sharing, virtual businesses, and smart search engines and are developed by Web 4.0 instruments as smart databases, smart personal assistance, location-based intelligence, augmented reality, and 3D visualization. The future needs of SBNs are found in the establishment of collective intelligence techniques, artificial collective brain technologies, etc.

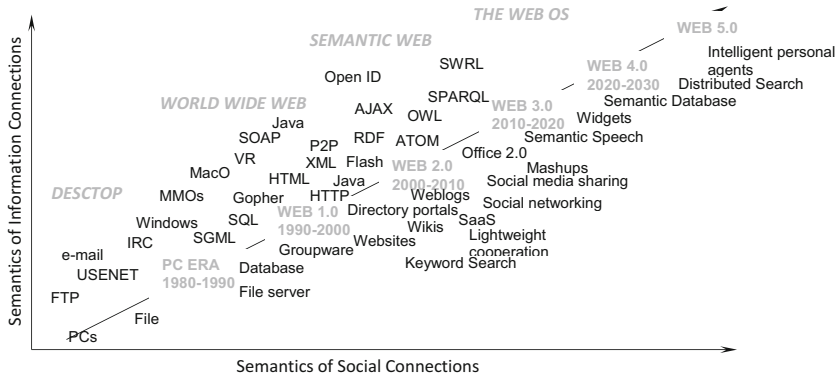


Fig. 1 Evolution of Web. (Source: Benito-Osorio et al. 2013)

Despite the overall development of different instruments that caused the establishment and development of global social business networking, the social business networks (SBNs) are already in the development stage on the engineers’ boards. The main question that is put in the core of the chapter is: Why the business does not attend to social business networks? Furthermore, what predictors stop the business managers to participate in the global business networks?

The limits of the literature are set by development of different instruments of web development and Internet instruments and techniques and/or development of social networking in the context of marketing instruments for sales improvement. As the core explanation of the networks is to combine the different network participants’ strengths for better added value of their common works, the business networking is developed in the literature as the private group of employees that use web instruments to improve their business goals. So, we found a gap between contemporary social business instruments, literature findings, and business practices based on the social networking techniques.

The following paragraphs summarize the common knowledge for social business networks (SBNs). As the behavioral approach is used the empirical analysis is based on the loop analysis between SBN attendance level and business demography independent factors. Not surprisingly, larger firms used much more Internet-based instruments and accept easily to share databases in win-win situations than the smaller businesses. Although the results are closer to some findings for the developed countries, the Bulgarian managers are less ready to accept business cooperation and sharing business information through SBNs.

To answer the main research questions, the chapter follows the structure: Section 2 gives an introduction to development of social networking: what causes the virtualization of business cooperation in the Web 4.0. Section 3 reviews business model of social business networking that will be applied in the study. Section 4 reveals methodological model applied in the study. Section 5 presents the empirical

results of the study, and Section 6 summarizes the main findings and suggestions for business model improvement.

2 Social Networks Development: Social Media, Social Network, Social Network Sites, Business Network

As the brief presentation of web evolution (see Fig. 1) shows, two major business changes are pushed up by Internet development: business cooperation and social networking (Web 3.0), smart personal assisting (Web 4.0), and collective technologies (Web 5.0). These technologies enforce two business changes:

- Establishment of artificial intelligence technologies in communications as well as B2C and B2B ones.
- Establishment of interactive communication (B2B and B2C) for maximization of collective decision attitude.

Both changes have to be based on further development of existing (traditional) social networks (TSN) (Web 2.0) to a business social networking (BSN) (Web 5.0) (see Sterev et al. 2018a, b).

In addition, the establishment of “social media” is connected to Internet evolution as it is explained as interactive dialogue that users use to share opinions, experiences, views, and any other kind of information among themselves. So, Kaplan and Michael (2010) define that “social media” is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0. Therefore, the social group behavior has been developed in social networking in Web 3.0 (see Fig. 1).

Collective behavior as a first step to collective intelligence (in Web 5.0) is found to be social behavior inside the company. As Krackhardt and Hanson (1993) stated the social network is an informal organization that has employees from across the company. This understanding of social networking as an organizational instrument to manage employees in the company is leading one from the mid-1960s to the 1980s (see O’Reilly 1988). With the establishment of Internet, social networking left the intra-organizational shape and it is defined as a virtual organization that uses electronic media for groups interactions without face-to-face communication. So, social network is a virtual group that is real group, but it is virtually co-located (Ahuja et al. 1997).

Furthermore, in 2000s the social network is further more developed and is defined as a social structure made up of individuals (or organizations), which are connected via Internet technologies by one or more specific types of interdependency, such as friendship, kinship, common interest, financial exchange, dislike, sexual relationships, or relationships of beliefs, knowledge, or prestige (see Kaplan and Michael 2010; Benkler 2006).

The Web 3.0 development allows us to define “social network sites”—a web-based service that allows users to share information within articulated list of other users and to view or comment on shared information by them or by their list of connections (Boyd and Ellison 2008). The “social network sites” have been developed to “social media channels” in IoT (Internet of Things) and as Smith (2017) worked out some of the business benefits of social media channels are leveraging social advertising, boosting brand awareness, increasing inbound marketing, and increasing conversion rates to sales.

On the other hand, business network is “sets of firms that are integrated neither completely nor barely at all” (Granovetter 1995, pp. 96–97). The business networks are important for development of international entrepreneurship (Rauch 2001) and innovations (Swan and Scarbrough 2005). Not surprisingly, the business network is defined (Granovetter 1973, 1995) as “a set of actors who know each other’s relevant characteristics or can learn them through referral” (cited by Rauch 2001, p. 119), and its definition is enlarged as “a group of agents that pursue repeated, enduring exchange relations with one another” (Podolny and Page 1998). Furthermore, Jones et al. (1997, p. 914) define that business networks are “persistent and structured set of autonomous firms (as well as nonprofit agencies) engaged in creating goods or services based on implicit and open-ended contracts.” Thus, the evolutionary business social network (BSN) is a simultaneous random group of firms and users that allow inter-group relationships (e.g., a user sharing a document, a group discussing, business data) that are defined by the business requirements.

3 Conceptual Model of Social Business Networks

The future of business development is connected to transforming the (traditional) business networks to business social networks. This is connected to digitalization of business processes as much as it is possible and to make the process results open-source ones. So, decision of problem of BSN establishment is an answer to the problem of escape from real to online virtual business.

The virtualization of the real business faces three problems:

First of all, it is about the **information**. In the data ocean, to find out needed information is not an easy task. Furthermore, “many information-gathering tasks are better handled by finding a referral to a human expert rather than by simply interacting with online information sources” (Kautz et al. 1997, p. 27). So, the main requirement for business social networks is to locate appropriate experts (individual or business) for helping in information search and its evaluation. The information problem decision is about encouraging contributions and feedback from everyone participating in the social network. The information feedback bridges the gap between business and its individual or business partners, including delivery and exchange of ideas at the real time online conversation.

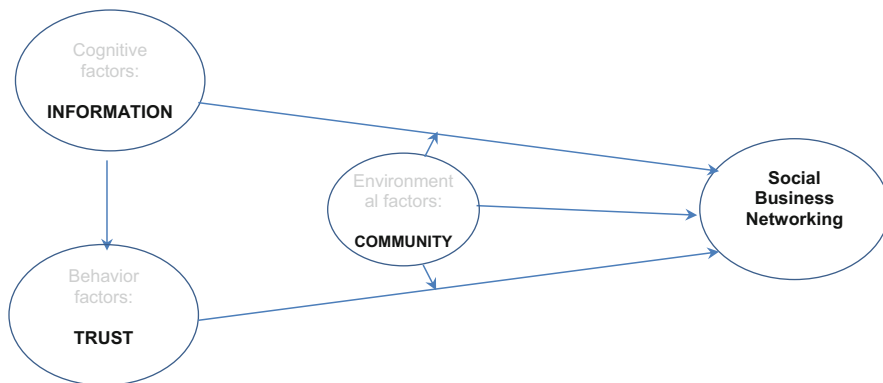


Fig. 2 Three factors of business social networking motivation. (Source: Own contribution and modification from Park, Sung, and Im 2017)

The second problem is about **trust**. According to Schneider et al. (2000a, b), social interactions are built around trust. They defined two instruments: personal opinion value, individual opinion; and community reputation value, summarized opinions of all individuals. Trust is created through honesty, transparency, and authenticity. One fake information could break the trust reputation.

The third problem is about **community**. It is important to know how business community and business social members are connecting to the social community of the business. Aston and Hu (2014) analyze community detection algorithms for discovering communities in networks. They found that there is no fixed order or form to network structures, as they arise randomly. In addition, business networks include millions of individuals and businesses and billions of connections between them continually changing their structure.

The contemporary business is very careful about ownership of the information. Any single information that could harm the sells' and profits' opportunities has to be limited and restricted. That is why general managers are more suspicious of the business social networks. In addition, trust is required for networking. Small and medium business are more open to networking, but they do not have enough resources to evolve their web techniques. That is why the motivation of BSNs' establishment is not directly dependent on the digitalization of the company. In summary, modifying Park, Sung, and Im (2017), the building of BSN motivation could be done by managing trust, community, and information (Fig. 2).

Accordingly, finding out the stage of digitalization of the real business and the reason for the limited "escape" from the real business needs three types of questions:

- The usage of instruments of digital business: e-mailing (Web 1.0), web pages, and social networking (Facebook activity: Web 2.0), intelligent web search (Web 3.0), or AI in web (Web 4.0).

- The information that could be transferred by BSNs: corporate public information (CSR, market prices, market volume, etc.) or/and corporate private information (new technologies, technology excellence, etc.)
- The probability measured by attitudes and motivation to establish a BSN in the future.
- The main hypothesis is: highest level of digitalization of the business follows “reality escape” and business virtualization through further development of the BSNs.

4 Data and Research Model

4.1 Research Model

The model of business behavior to use the social business networks is close to the behavior research methodology outlined for the individual behavior. In its basics, the “black box” model is given as a simplifying model that explains the relation between system inputs and outputs (Zhang 2010) (Fig. 3).

The business behavior research has become popular in the business theory in the 1970s when Mintzberg set its role model theory and later Triandis presented behavioral framework (see Ikart 2005). In addition, the black box model is based on Ajzen and Fishbein model (Fig. 4) for predicting business behavior based on attitudes and beliefs (Southey 2011).

The main strengths of the model that are used by previous studies of the computer-based management are that the model addresses explicit social, cultural,



Fig. 3 Black box model for business digitalization. (Source: Own presentation)

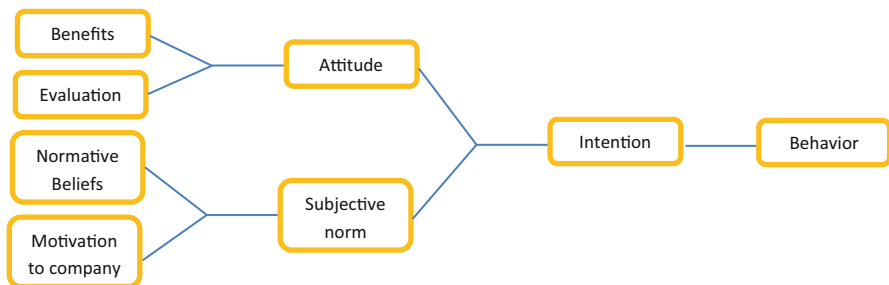


Fig. 4 Theory of reasoned actions of Ajzen and Fishbein. (Source: Southey 2011)

and organizational factors that could explain the adoption and usage of information technologies for managerial purposes (Ikart 2005). For the purpose of the research, some of the variables of the given models could be set by the Triandis (1979) model:

- **Facility conditions:** objective variable that outlines the geographical environment. They support managerial decision making by organizational environmental facilitating, for example, the type of the city of doing business.
- **Social conditions:** subjective variable that occurs in social culture. The social conditions measure the expected behavior by a group of similar businesses, for example, the type of industry.
- **Habits condition:** situation-behavioral variable that explains the computer-based learning model. Mainly habits refer to past experience and nature of individuals' response, for example, the size of the business.

Motivation of the company influences the business behavioral intention to apply social business networking for business purposes. The motivation could be explained as the subjective probabilities and individual beliefs that application of the SBNs will increase the business success. The division of the business motivations is needed:

- Probability of accepting BSNs, for example, 5 scale evaluation of the business probability
- Degree of individual beliefs for BSN's success, for example, 5-scale evaluation of the beliefs of success of SBNs usage.

Attitudes toward usage of SBNs is measured by 3-point differential scale. It explains BSN users' assessment of the benefits of the social business networking.

Business behavior to SBNs focuses on the result of social business networking acceptance. It could be explained within the level of business digitalization: the usage of instruments of digital business:

- e-mailing (Web 1.0)
- Web pages and social networking (Facebook activity: Web 2.0)
- Intelligent web search (Web 3.0)
- Artificial intelligence (AI) in web (Web 4.0)

The simple black box model could be presented as a linear model of dependence between dependent and independent variables (Formula 1).

$$F_i^B = \alpha.F_i^A + \beta.F_i^M = c_1.FC_i + c_2.SC_i + c_3.HC_i + \varepsilon \quad (\text{Formula 1})$$

where F_i denotes the function of BSN behavior results (F^B), BSN attitude (F^A), and BSN motivation (F^M).

Facility conditions (FC), social conditions (SC), and habit conditions (HC) expressed the independent variables as the functions of BSN behavior, attitude, and motivations.

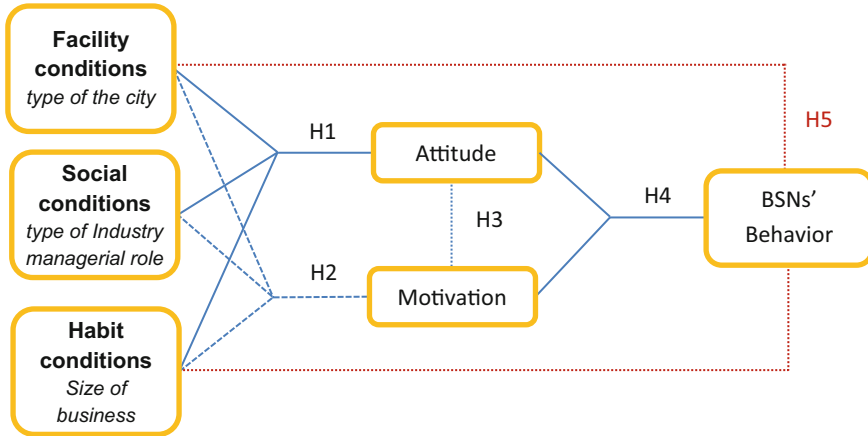


Fig. 5 Research model and hypothesis. (Source: Own presentation)

The researched model on hypothesis could be presented in Fig. 5 that is based on the Fishbein’s theory of reasoned actions.

Accordingly, the main 5 hypotheses are set:

H1 : Business environmental characteristics that affected the usage of information technologies in business management (size of business, type of industry, and type of city) will have positive effect on the attitudes to business social networking.

H2 : Business environmental characteristics that affected the usage of information technologies in business management (size of business, type of industry, and type of city) will have positive effect on the motivation to business social networking.

H3 : Business attitudes and business motivation to business social networking are interconnected.

H4 : Business attitudes and business motivation to business social networking will have positive effect on BSN’s behavior.

H5 : Business environmental characteristics that affected the usage of information technologies in business management (size of business, type of industry, and type of city) will have positive effect on the attitudes to BSN’s behavior.

As the defined variables of SBNS’ behavior research are defined as category values, the research hypothesis will be checked by **analysis of variance (ANOVA tests)**. The ANOVA methodology is used to analyze the behavioral differences between defined business environmental and behavioral variables.

In addition, the **optimal scaling (CARTREG) analysis** is used as an example of multivariate category data analysis for quantitative values of given qualitative scales. In the optimal scaling the linear regression function is tested as given in Formula 1.

4.2 Research Data and Business Profile

The used data cover real attitudes, motivation, and reaction of 108 Bulgarian managers for business presence in the data transfer and/or social networking. The research is done in May 2018 with the techniques of deep interview with managers. The sample is stratified randomly by the list of established business in Bulgaria. The stratified sample of researched business is done according to the industry type and city type. The profile of the respondents (a 100% of response rate) is given in Table 1.

The business demography analysis shows that observations are almost equally distributed by the size of enterprise and the industry. Nevertheless, we expect a different attitude and motivation of the business to participate in BSNs besides their demography profile. This seems to be clear that the smaller is the business, the bigger is resource limitation, including additional resources for web instruments. In addition, the service business, including trade, is more digital oriented and the possibilities of BSNs could be more feasible for them. Not surprisingly, the companies from biggest cities fulfill 85% of the observations. The specialist as well as the Internet possibilities increases with the size of the city of the main business.

Digitalization of the business (levels of Web x.0 evolution) as it was set as a result of SBNS' behavior. Distribution of the answers for usage of Internet instruments gives the picture of the digitalization of Bulgarian business (Table 2).

Data analysis shows that the number of companies that uses different instruments and Internet techniques from different evolutionary stages from Web 1.0 to Web 4.0 decreases. The highest number of companies use simple techniques, including e-mails, as almost 100% declare to use it. But on the second level they are reduced to 72% of companies and at the third and fourth level less than 49%. The share of the business distribution according to their digitalization is summarized in Fig. 6.

Table 1 Profile of the respondents

BSNs' variables	Scales of variable set	Percentage (%)
Size of the business	Micro (less 10 empl.)	29.36
	Small (10–49 empl.)	22.94
	Medium (50—249 empl.)	22.02
	Big (over 250 empl.)	25.69
Industry	Agriculture	8.26
	Processing	22.02
	Buildings	9.17
	Trade	32.11
	Services	28.44
City size	Capital (Sofia)	44.04
	Big city	40.37
	Small city	11.93
	Village	3.67

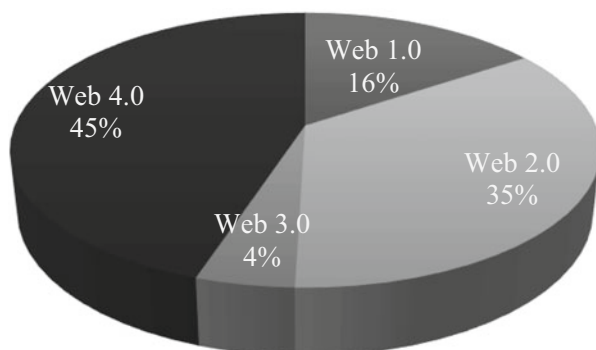
Source: Own calculations

Table 2 Profile of the respondents

BSNs' behavior scale	Dichotomy scale to BSN behavior	Percentage (%)
Internet page	Yes	72
	No	28
Social networking	Yes	36
	No	65
2D or 3D product visualization	Yes	3
	No	97
Internet (A) Intelligence	Yes	62
	No	38

Source: Own calculations

Fig. 6 Shares of digitalization of the Bulgarian business. (Source: Own calculations)

**Table 3** Attitude and motivation to BSN participation (Web 5.0)

BSNs' behavioral intermediates	Scale of BSNs' behavioral intermediates	Percentage (%)
BSNs' attitude	positive	66
	negative	12
	n.a. ^a	22
BSNs' motivation	yes	19
	may be yes	34
	may be no	12
	no	12
	n.a. ^a	22

Source: Own calculations

^an.a.—no answer

Attitude and motivation to go up to BSN Web 5.0 establishment are explained by the users' assessment of the benefits of the social business networking (attitudes) and probability of accepting BSNs (motivation).

The distribution of the answers is given in Table 3.

As less than 45% use modern web instruments to develop their business, it is expected that almost 34% of observations have negative attitude to business social networks' inclusion.

When the question is directly appointed, as well as we expect, the motivation to participate in BSNs reduces to less than 20%. This final result is in continuation of the status quo research, as the highest expected number of web-active companies in BSNs is 45% (see Table 2).

5 Findings

Data analysis covers ANOVA and CARTREG analysis of the given set of 6 variables and 5 sub-hypotheses.

First of all, the main research question is: Whether there is statistical correlation between SBNs' behavior (dependent variable) and environmental independent variables: facility conditions, social conditions, and habit conditions.

Verification of sub-hypothesis *H5* that the digitalization of the business depends on the demography variables of the companies is done by the **optimal scaling (CARTREG) analysis** by using ANOVA analysis method.

Main results of analysis are shown in the following:

- There was a significant main effect for treatment, $F(6, 108) = 4.46$, $p = 0.00$.
- The dependent SBNs' behavior variable is strongly correlated to the environmental SBNs' independent variables as $r(108) = 0.32$, $F(2, 108) = 12.77$, $p < 0.01$ for the habit conditions (type of business) and $r(108) = -0.241$, $F(2, 108) = 4.03$, $0.05 < p < 0.01$ for the facility conditions (type of city). The SBNs' behavior variable is insufficiently correlated to social conditions (managerial position) variable as $r(108) = 0.16$, $F(2,108) = 1.78$, $p > 0.1$.

So, figures show that there is significant dependence ($\alpha = 0.000$) between digitalization level (BSN's behavior result) and major business demography factors as size of business ($\alpha = 0.000$) and size of city for business activity ($\alpha < 0.05$).

As **H5 sub-hypothesis is proved**, the interesting result is that the dependence of the digitalization and size of city is **NEGATIVE ($\beta = -0.241$)**. Our deep interview analysis shows that the companies from big cities (including capital) have more real opportunities for development as the companies of small cities and villages have to do more of their hard work via Internet techniques and technologies.

Second, as **H5 is proved**, the check of **H1** and **H2** is needed.

Verification of sub-hypothesis *H1* that the SBNs and attitudes depend on the demography variables of the companies and *H2* that SBNs and motivation depend on the demography variables of the companies is done by the **optimal scaling (CARTREG) analysis** by using ANOVA analysis method.

Main results of analysis are shown in the following:

- There was a no significant main effect for treatment for the SBNs' attitude as $F(5, 108) = 1.24, p = 0.295 < 0.1$.
- The dependent SBNs' attitude variable is not correlated to the environmental SBNs' independent variables as $r(108) = -0.17, F(2, 108) = 2.14, 05 < p = 0.122 < 0.1$ for the habit conditions (type of business), social conditions (managerial position) variable as $r(108) = 0.15, F(1,108) = 0.00, p = 0.928$, and the facility conditions (type of city) as $r(108) = -0.18, F(2,108) = 1.60, p = 0.208 > 0.1$.
- There was a significant main effect for treatment for the SBNs' motivation as $F(8, 108) = 3.30, p = 0.002 < 0.01$.
- The dependent SBNs' motivation variable is strongly correlated to the environmental SBNs' independent variables as $r(108) = -0.25, F(4, 108) = 3.37, 05 < p = 0.013 < 0.01$ for the habit conditions (type of business) and social conditions (managerial position) variable as $r(108) = -0.34, F(2,108) = 14.39, p = 0.000$. The facility conditions (type of city) are insufficiently correlated to social conditions (managerial position) variable as $r(108) = -0.12, F(2,108) = 0.66, p = 0.52 > 0.1$.

So, as figures show, H1 is not confirmed as H2 is. Thus, there is significant dependence ($\alpha = 0.002 < 0.01$) between BSN motivation and major business demography factors as size of business ($\alpha < 0.05$) and managerial position ($\alpha = 0.000$). As the sub-hypothesis is proved, the interesting result is that the dependence of the BSN motivation is **NEGATIVE** for all predictors: size of business ($\beta = -0.253$), city type ($\beta = -0.123$), and managerial position ($\beta = -0.343$). So, bigger business in bigger cities leads to less motivation to establish BSN. In addition, marketing responsible managers are more motivated to organize a Web 5.0 Internet technique in the company. Both results are reasonable as social network (real based) is more sufficient in small companies and small villages, so the business is more open to socialization of the business.

As well, BSN is a future Internet development technique, so marketing-oriented managers are more "happy" to participate than the general managers of production managers.

The second sub-hypothesis that the attitudes and motivation for BSNs' participation depend on the level of digitalization is verified by bivariate correlation analysis.

Next, sub-hypothesis H3 that the SBNs' attitudes and SBNs' motivation depend on each other is checked by correlation analysis. The main results are summarized as follows:

- The given two variables were strongly correlated by parametric correlation as $r(108) = 0.342, p = 0.000$.
- The given two variables were strongly correlated by non-parametric correlation as $r(108) = 0.369, p = 0.000$

The results CONFIRM H3 that the positive is the SBNs' attitude the highest is SBNs' motivation for using social networking. Mainly the managers that are

negative to the social networks are also negative to the inclusion of the social business networks.

Finally, the verification of sub-hypothesis *H4* that the digitalization of the business depends on SBNs' attitudes and SBNs' motivation variables is done by the **correlation analysis** and **optimal scaling (CARTREG) analysis** by using ANOVA analysis method.

- The given dependent (business digitalization) and independent (SBNs' attitude) variables were strongly correlated by parametric correlation as $r(108) = -0.206$, $p = 0.03 < 0.05$ and by non-parametric correlation as $r(108) = -0.212$, $p = 0.03 < 0.05$.
- The given dependent (business digitalization) and independent (SBNs' motivation) variables were not strongly correlated by parametric correlation as $r(108) = -0.127$, $p = 0.19 > 0.1$ and by non-parametric correlation as $r(108) = -0.167$, $p = 0.08 < 0.05$.
- There was a significant main effect for treatment for the SBNs' behavior by SBNs' motivation and SBNs' attitudes as $F(1, 108) = 15.15$, $p = 0.000 < 0.01$.
- The dependent SBNs' behavior (business digitalization) variable is not strongly correlated to the SBNs' independent variables as $r(108) = -0.175$, $F(1, 108) = 2.317$, $p = 0.131 > 0.1$ for the SBNs' attitude variable and as $r(108) = -0.285$, $F(1,108) = 1.204$, $p = 0.275 > 0.1$ for the SBNs' motivation variable.

Figures show that the motivation for BSNs' inclusion as well as attitude depends on the used Internet techniques and on the digitalization of the business. Nevertheless, they found that relation and the real dependence are not so clear or/and so strong ($\beta < 0.399$). The explanation is that BSNs are similar to traditional social networks. This result is found by testing the dependence ratio of the BSN's instruments (strength of inclusion) to the digitalization of the business, and there is no single dependence with a significant correlation coefficient.

6 Conclusions

Even though the business social networking was set as marketing problem back in 1971, the real boom of the research papers has started in 2003 and more than 1500 papers in the field are published annually in different areas: from business management and marketing to social sciences and computer sciences. The final understanding is that the business social networks is an expression of the collective intelligence as a Web 5.0 instrument, where a lot of independent individuals and companies will lead to business excellence. So, BSN is an evolutionary technique of (traditional) social networking that helps to spread out the information about the business in a random chain model.

The main problem is how to transfer the qualitative results (e.g., number of likes in social networks) to quantitative metrics (e.g., business profit) in order to explain

the business motivation for BSNs' establishment. The problem decision is based on the establishment business trust in the community as well as increasing business believe to the community's possibilities for developing the business. So, the attitude and motivation of BSN participation will increase with the shared contact points between company and community (e.g., CRS, product development, added values, and additional services).

The Bulgarian managers are too skeptic for the benefits of BSN (because of lack of trust or unwillingness to share information neither be a part of information community) as many of them are set out of the networks: no e-mails, no corporate pages, and no network profiles. So, the main limit of development of BSN is the quality of the information (data) the business is ready to transfer via open social networks. Not surprisingly, as bigger business operates in bigger cities, there is less motivation to establish BSN. In addition, marketing responsible managers are more motivated to organize a Web 5.0 Internet technique in the company.

Finally, the decision for the problem with the BSN acceptance could be solved by governmental support to IT business to propose adequate Web 5.0 instruments that are based on the major predictors: to be trusted, to be information exchange oriented, and to be community inclusion oriented.

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Dynamic Marketing Capabilities in Intercultural Environment



Maciej Mitreęa and Anna L. Wiczorek

Abstract The dynamic capabilities approach is nowadays one of most influential schools in management theory, and this approach calls for systematic reorganizing of company resources and processes due to changing competitive environment. In this chapter, we contribute to emerging knowledge on dynamic capabilities (DCV) in marketing in several ways. Firstly, we identify the gaps in the literature with regard to these capabilities emphasizing some controversies and inconsistencies with regard to definitions of main constructs and their measurement. Secondly, we review prior conceptualizations in this area and propose our own definition of so-called dynamic marketing capabilities (DMC) which is aligned with DCV in strategy research as well as with prior typologies of marketing resources and capabilities. Thirdly, we present results of own qualitative research (case studies), which allows us to identify how real existing companies develop and use DMC in their activities on export markets. Thus, our study enabled exploration of some building blocks of DMC on international markets.

Keywords Dynamic capabilities · Marketing · Intercultural · International · Case studies

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1 Introduction

The company strategy concepts remain the main area of interest within management discipline. There are, at least, three widely accepted paradigms presenting different approaches to company strategy: the industry-based view of the firm (Porter 1985), the resource-based view or RBV (Barney 1991), and the relational view or RV (Dyer and Singh 1998). The dynamic capabilities view (DCV) was introduced as an extension to the RBV (Teece et al. 1997; Teece 2007; Winter 2003) and corresponds with growing interest in dynamic aspects of management. In line with RBV, DCV assumes developing unique company resources and competences as a main factor of competitive advantage, but in contrast to RBV, DCV emphasizes that such resource constellations must be constantly challenged. Shortly, in DCV the company must develop capabilities (bundles of resources) that enable constantly sensing the environment to seize opportunities and reconfiguration of company resources. DCV assumes also that advantage-generating resources do not have to be possessed and controlled by the focal company, but it is fair enough that the company has effective access to such resources, i.e., through inter-organizational relationships and networks.

It is rather widely accepted that there is no single one dynamic capability, but there are various dynamic capabilities that shape functional capabilities in such areas as supply chain (Fawcett et al. 2011; Hammervoll et al. 2012), manufacturing and R&D (Brown and Bessant 2003; Lawson and Samson 2001; Stanisławski 2013; Stawasz 2015), information technology (Bhatt and Grover 2005), and, the last but not the least, marketing (Bruni and Verona 2009; Flatten et al. 2015; Tsai 2015). This chapter corresponds with a recent call for more clarity and convergence of definitions of dynamic capabilities across various business areas (Schilke et al. 2018), especially with regard to dynamic capabilities devoted to marketing as a business function (Barrales-Molina et al. 2014; Falasca et al. 2017). Firstly, this chapter contributes to this call by conceptualizing so-called dynamic marketing capabilities (DMC) in line with theoretical boundaries of this concept in DCV. Secondly, this chapter presents the case studies of companies utilizing DMC in their international activities. Thirdly, on the basis of case studies, this chapter proposes main elements of DMC adjusted to intercultural environment, and at the same time, this chapter contributes to a better understanding of cultural contingencies of developing dynamic capabilities in organizations. Some limitations of the chapter and suggestions for further studies are presented in the final part.

2 Dynamic Marketing Capabilities Concept

The dynamic capabilities view (DCV) grounded in two seminal works by Teece et al. (1997) and Eisenhardt and Martin (2000) appeared to be a very influential school in management research, e.g., almost 35,000 citations of Teece et al. (1997).

Table 1 Overview of DMC understandings presented in the literature

Conceptualization	Authors
Human capital, social capital, and cognition of managers engaged into building, utilizing, and integrating market knowledge and marketing resources in order to adjust to market and technological change	Bruni and Verona (2009)
Specific inter-functional business processes aimed at building and creating extraordinary values for customers as a response to market changes	Fang and Zou (2009)
Managerial/business processes which bring extraordinary value for company stakeholders through three elements: customer relationship management, new product development, and supply chain management	Xu and Li (2011)
Inter-functional processes connected with utilizing market knowledge to transform the company connected mostly with new product development and proactive market orientation	Barrales-Molina et al. (2014)
Firm’s capacity to build, integrate, and reconfigure strategic marketing tools and acumen for effectively identifying and accessing international markets and delivering value to these markets	Weerawardena et al. (2015)
A group on interconnected routines which make it possible for a company to engage into specific marketing actions in response to changing market conditions	Konwar et al. (2017)

Source: Authors’ own study

However, this theoretical framework has raised a lot of controversies that connected with tautological character of its assumptions, weak empirical fundamentals, and unclear meaning of main construct (Arend and Bromiley 2009; Barreto 2010; Newbert 2007). These controversies were to a large extent based not on underpinnings of DCV itself, but rather on the fuzzy way DCV was incorporated in research projects from various disciplines. These studies have proposed many specific dynamic capabilities which were clearly inconsistent with DCV. Consequently, our knowledge about specific dynamic capabilities did not progress too much and a lot of empirical research in DCV area functions more like “emperor’s new clothes” phenomenon than anything else. These issues were very visible in the specific research area about dynamic capabilities in marketing.

The term dynamic marketing capabilities was introduced in the literature in 2009 by Bruni and Verona (2009) and Fang and Zou (2009). It is not entirely true since this very term had been used earlier—i.e., during conference presentations organized by AMA. The access to these presentations was, however, restricted only to AMA members. Thus, we can treat 2009 as a starting point in academic discussion on the importance and meaning of DMC. Taking such starting point means that the research on DMC is at its early stages. An initial phase of development of any theoretical concept tends to be characterized by a high level of fragmentariness, and it has its disadvantages and advantages at the same time since it gives an opportunity for various exploratory research directions, conceptual and empirical in nature.

Table 1 presents DMC definitions which were reflected in publications between 2009 and 2017 and which show the varied nature of understanding DMC. We can observe various inspirations used on conscious or unconscious level by DMC researchers. Most often dynamic marketing capabilities were understood as routines

of a given organization and classified as processes influencing and crossing the whole organization. We can assume that DMC understood in such a way emerge in time on the basis of experience and interactions between marketing people, the executive management, other members of an organization, and some external entities (e.g., market research agencies). However, it should be also emphasized that quite some prior studies conceptualized and especially measured DMC in a way that was inconsistent with DVC view, because these studies treated DMC as various improved effects of resource utilizations not business routines improving/revising these resources (e.g., Fang and Zou 2009; Weerawardena et al. 2015). Such approach toward DMC is problematic, because it opens tautology hazard for DMC research. Similarly to general DCV in strategy research, DMC should be rather conceptualized from the perspective of some processes/stable patterns of behavior leading to modified resource combinations.

Day (2011) is of the opinion that contemporary environment gives marketing managers new challenges and within marketing theory there is a gap between already well-researched marketing capabilities and those that are only now emerging as important from the perspective of the observable tendencies in the social and technological surroundings. It appears that the gap could be filled by DMC. At this stage, it is important to build a consensus on a DMC conceptual framework, so as to ensure cumulative knowledge growth.

Following prior definitions of DMC, typologies of marketing resources and capabilities (Kozlenkova et al. 2014; Morgan 2012), and seminal works on dynamic capabilities by (Teece et al. 1997; Eisenhardt and Martin 2000), we may assume that for any definition of DMC to stay consistent with their DCV origins, this definition should associate DMC with some processes reconfiguring marketing resources of the focal company. In turn, these strategic changes should be aligned toward changes that happen in the company market and they should be somehow routinized, i.e., DMC should allow not only discrete change even the deep one, e.g., rebranding, but it should facilitate systematic changes in the set of marketing resources. Last but not the least, the changes facilitated by DMC should be not restricted only to marketing department, but it should involve top management, because changes brought by DMC should be strategic in nature and they should involve coordination across departments in the organization.

Therefore, we propose to define DMC as market-dependent processes oriented at reconfiguration of firm's marketing resources and capabilities.

3 Case Studies of DMC in Intercultural Context

There is a weak understanding of how dynamic capabilities may be applied toward international markets/intercultural environment (Knight and Kim 2009; Weerawardena et al. 2015), especially with regard to marketing strategies (Fang and Zou 2009; Weerawardena et al. 2015). This is a very early research area, but it calls for more studies. Even intuitively, company export internationalization is a

natural context of applying DMC, because while marketing becomes more international there is systematic challenge to align marketing activities toward new circumstances, i.e., specific features of foreign markets. Such alignment may take many forms, e.g., adjusting products/services, resegmentation, new communication tools, and repositioning as well. As today economy is more and more globalized, it may be even assumed that all medium and big companies should develop some DMC adjusted to the dynamics of their international activities.

Following early stage of research in the area under consideration, we contribute by qualitative research conducted among companies. This study was explorative in nature and was aimed at identifying some elements of international DMC. We conducted case studies of 8 companies that dynamically develop their position on foreign markets, so the selection of companies was judgmental. Specifically, we focused only on these companies that have substantially modified their marketing resources to make them more aligned to trends observed in international environment. We also concentrated only on these companies that have largely and recently improved their positions on foreign markets. Thus, we selected rather “success stories” than “failures” as alternative criteria for selecting cases in qualitative research. Last but not the least, we have concentrated mainly on companies with Polish origins, which was convenient to us, but was also justified by the dynamic improvement of position of Polish companies in international supply chains. This improvement is visible especially through positive international trade balance that is observable for Polish economy in recent years.

Table 2 describes specific features of all 8 companies that we investigated. Some names of these companies are presented only through codes, because during interviews conducted in these companies such anonymity was expected and guaranteed. The majority of these companies were companies with Polish origins, except β Company, C company, and Disney. Following principles of qualitative research, wherever available, we combined data from various sources, i.e., interviews conducted with top management, company secondary data (“internal secondary data” in Table 2), and publicly available publications about the company (external secondary data in Table 2). In terms of the number of employees and turnovers, the investigated companies were usually big companies. Our data collection took place in 2018, but the activities of enterprises we analyzed retrospectively referred to much longer time period, sometimes including the last two decades. In this chapter, we only present selected research results that illustrate specific building blocks of DMC developed in investigated companies.

Atlas Group is one of biggest company providing chemical products to building industry in Central and Eastern Europe, but it has also an important and growing position in Western Europe. Atlas Group consists of 19 business entities and employs over 2000 people. Although, this company needed to progressively adjust marketing to export markets since the 1990s, it was especially the end of the first decade of twenty-first century, when Atlas had a chance to apply their DMC in international scale. Specifically, the economic crisis that started in 2008 challenged existing marketing resources and only through dynamic adjustments that were made in various foreign markets, Atlas was able not only to sustain its position on this

Table 2 Basic features of companies participated in qualitative research

No	Firm name/code	Industry	Firm size	Export size (%)	End market	Data sources		
						Interview	Internal secondary data	External secondary data
1	Atlas	Chemical products	Very big	Around 20	Mainly B2C	X	X	X
2	Topex	Electro-tools	Big	30–50	B2C/B2B	X	X	X
3	Beta	Electronics	Very big	Transnational	Mainly B2C	X	–	X
4	C	Electronics	Very	Transnational	B2C/B2B	X	–	X
5	KU	University	Big	30–40	B2C	–	X	X
6	Disney	Entertainment	Big	Transnational	B2C	–	–	X
7	Inglot	Cosmetics	Middle	Around 50	B2C	–	–	X
8	CD Projekt	Computer games	Big	Around 50	B2C	–	–	X

Source: Authors own study

markets, but even improve it. DMC was observable through sometimes radical changes and flexibility in marketing resources, like illustrated in the following citation with Atlas manager: *“Even with growing market, one single event may hamper it, for example one political event or global one like economic crisis. The crisis in 2008 has hit enormously in our buyers in Latvia, so we needed to react immediately and we have set our own distribution channel that replaced prior wholesale partners and sustained our brand on this market.”*

Topex Group is a big Polish company providing tools and power tools to customers mainly from Central and Eastern Europe, but company products may be found in 40 countries around the world. A large portion of Topex sales comes from foreign markets and it still grows. According to interviews conducted with Topex’s manager, the company also needed to adjust their activities to the volatility of the tool industry (boosted by the global financial crisis). However, this volatility remains somehow a constant challenge in company operations nowadays, which also means that the company has some analytical tools in place, which help in adjusting operation toward changes that happen in macro-environment, e.g., legal changes in particular countries, political and even military conflicts, and exchange rates. These changes cannot be easily predicted, so in the case of this company, scenario planning is one of most important blocks of DMC in international markets. It is illustrated by the following citation from the interview: *“. . . the weakness of, złoty” [Polish national currency] transfers automatically into prices of imported products. Searching for answers for future predictions is nothing more than, prophesy from the sphere’. Managing such big company as Topex we need to be ready for every scenario. . . .”*

Beta is a multinational corporation, one of the leaders on the global market supplying electronics to consumers (rather than business markets) through extensive middleman chain around the world. Beta has been building their international position for several decades already, but the company substantially reshaped their product portfolio since the beginning of the twenty-first century following new consumer trends and technologies. However, the specific aspect of DMC that was very visible in Beta activities was not only adjusting toward environmental trends but also facilitation or even designing these trends through marketing communication, especially social media as illustrated in following citation: *“. . . we are trying for the main innovations to build situations that when product launches on market, somehow in all touchpoints there is already some content about it. It is about rates and reviews, some releases connected with product or product category, technology, some video records about how to use it. It all makes that when product launches, there is not situation that nobody knows what it is. It all improves the purchasing or decision making path.”*

Similarly to Beta, Company C has a well-established brand image, provides electronic products to the global market, and is oriented mainly at individual consumers with their products. This company also not only adjusts to consumer trends but also stimulates such trends on its own. Specifically, this company has invested a lot of efforts in popularizing specific technology XYZ among women, even if this technology has a long tradition among male consumers. In this case, one

may conclude that stimulating consumer trends or even specific lifestyle went hand in hand with demographic resegmentation as important aspect of DMC: “*It is worth to mention X, Y, Z—the programme that makes technology closer to women, it show good practices and promotes knowledge in this area. I like this programme not only because it was awarded by the industry, but also because it is so unique.*”

Kozminski University (KU) is another example of the company utilizing DMC on international market, but operating in a very different industry than companies already described. Kozminski is a private nonprofit business school that was established in Poland in 1993. Although starting from the position of the local school competing with well-established Polish universities, Kozminski has substantially developed their competences, including triple accreditation via EQUIS, AMBA, and AACSB. Nowadays, it is also ranked as the top business school in Central Europe according to *the Financial Times* and in other major rankings. The specific aspect of DMC in the context of international markets which makes Kozminski very special is that in contrast to the vast majority of Polish universities, Kozminski has been investing from its beginning in building international marketing competences and international recognizability. It was even when Polish domestic educational market was very comfortable, especially in the 1990s, when there were many new players entering the market. In contrast to these companies, Kozminski was systematically developing their position with regard to such elements as language competences of teaching and administrative staff, building portfolio of publications in recognizable journals, direct marketing on international scale, and facilitating affiliation with university using various modern communication tools.

Walt Disney Company is an American corporation operating in mass media and entertainment industry. This is one of biggest players in this industry that heavily diversified from animation studio originally into producing theatrical movies, television, and theme parks. There are many aspects of DMC observable in Disney activities, but perhaps the business routine that made this company special in this regard was systematically revising their segmentation and brand positioning. Although Disney had some earlier experience with producing non-cartoon movies, the turning point was probably the introduction of *Pirates of the Caribbean* movie in 2003. Since that time, Disney is consequently enlarging the end market. Disney still produces mainly action movies, but Disney became oriented not only at children, but also families in general and even older customers. The next turning point in this process was the acquisition of Lucas Arts company and launching new movies within *Star Wars* franchise. Additionally, Disney also systematically combines some old marketing tools, like TV advertisement with increased presence in “modern channels,” including video games and social media. Similarly to companies like Beta and C providing electronics, Disney become very effective in creating the interest in their new products before these products become really launched on the market.

Inglot Cosmetics is the Polish company with over 30 years of experience in producing women beauty products, especially make-up products. The company released their first products: nail polishes, lipsticks, and eyeshadows in the late 1980s in Poland still before communism finally collapsed. Since that time the

company developed radically. The first step was to redefine distribution strategy: from selling products through pharmacies and grocery stores into establishing its own exclusive retail outlets in malls. Nowadays, Inglot has over 800 such outlets located in all over the world and become one of top players on global make-up market. However, what is especially interesting with regard to Inglot DMC in international market context is that Inglot is very agile in adapting their products toward specific features of foreign markets. Very spectacular and also successful example of Inglot competencies was the introduction of O2M Halal Breathable Nail Enamel in the Middle East markets in 2014. As for many Muslim women it was very important that the water cleans every part of their body before prayers, this specific type of nail polish was warmly welcomed by many Muslim customers and helped Inglot in building brand image in the region.

CD Projekt is another Polish company that implemented DMC toward their activities on foreign markets. The company was established in 1994 and at the beginning CD Projekt focused on distributing foreign computer software, especially video games into Polish market. Then the company become translating major Western video-game releases into Polish language, which allowed for systematic developing competencies related to game production. The milestone was 2007, when the company released the *Witcher* game, their own production based on the fantasy universe created by Andrzej Sapkowski in his novels. The game was very successful on the domestic market in Poland, but was also warmly welcomed by many fans of RPG games and received many awards around the world. Since that time CD Projekt introduced new games in international markets, including the *Witcher 2* (2011) and the *Witcher 3* (2015). Both of these products became spectacularly successful on global markets in terms of the sales volume and number of prestigious awards received. What makes CD Projekt a very interesting example of DMC in international markets is, first at all, path dependencies observed in company gradual internationalization. The success of every next product was more international and it was largely based on the experience accumulated from prior product releases. Secondly, CD Projekt nicely combined their strengths earned on domestic market, especially animation capabilities and copyrights for Sapkowski's fantasy universe with modern marketing techniques useful in game industry, such as production of high-quality trailers and controlled dissemination of news about new products through social media. Although the universe created by A. Sapkowski contains a lot of regional elements, especially strong connections with Slavonic mythology, CD Projekt managed to combine these elements into products sold globally. The recognizability of CD Projekt's products became so strong that Netflix started production of television series based on Sapkowski's universe, which is planned for release in 2019.

4 Conclusions

In this research, we contributed to emerging knowledge on dynamic capabilities (DCV) in marketing in several ways. Firstly, we identified the gaps in the literature with regard to these capabilities emphasizing some controversies and inconsistencies with regard to definitions of main constructs and their measurement. Secondly, we have reviewed prior conceptualizations in this area and proposed our own definition of so-called dynamic marketing capabilities (DMC) which is aligned with DCV in strategy research as well as with prior typologies of marketing resources and capabilities. Thirdly, we presented results of own qualitative research (case studies), which allowed us to identify how real existing companies develop and use DMC in their activities on export markets. Thus, our study enabled identification of some building blocks of DMC on international markets.

Although our study was only explorative in nature, business practices that we observed lead us to some temporal conclusions in the area under investigation. The development of international DMC comes usually as the path-dependent process which is very much in line with DCV reasoning (Eisenhardt and Martin 2000; Teece et al. 1997). Business routines enabling agility in international markets do not come on a discrete basis, but they are rather built through multistage process, where company first builds its strong position on domestic market and only then it gradually modifies its product portfolio and other marketing resources toward specific features of foreign markets. Additionally, enlarging scale of international activities starts usually through foreign markets that are culturally and economically close to the domestic market and only then it moves to the more distant markets. The companies we studied were mainly based in Poland, so they usually started with expansion toward the countries in the region, i.e., Central and Eastern Europe, and then they continued toward Western countries.

Although many marketing mix adaptations were visible in our case studies (e.g., Atlas, Inglot, Kozminski, CD Projekt), we also observed that some companies develop specific routines that allow them to propose quite standardized solutions in international markets (Disney, Beta, C). These were usually very big companies, which were not only able to detect and anticipate changes in the global market, but also they had some routines in place, which enabled stimulating trends on the large scale. These companies seem to detect somehow latent needs in consumer behavior and facilitate these needs with their marketing mix, especially marketing communication. This strategy corresponds well with the distinction between so-called reactive market orientation and proactive market orientation (Narver et al. 2004), where the latter is suggested to increase the success of NPD in today's changing markets. Our research suggests that incorporating this strategy in DMC may be very helpful to succeed in international markets. The question is to what extent such strategy may be also be applied by smaller companies at the early internationalization stage. This is the area for further research, because social media allows for marketing communication on a global scale even in the case of smaller companies. Nevertheless, intuitively this is rather strategic option suitable for established companies as they

can more easily use path dependencies in their activities and they have already some marketing resources in place that would legitimize their new activities among customers.

Our research also suggests that developing DMC in international markets demands some specific managerial features, which also corresponds well with DCV in strategy research. Specifically, it corresponds with so-called dynamic managerial capabilities concept (Helfat and Martin 2015; Martin 2011; Sirmon and Hitt 2009), where there are the three underpinnings: managerial cognition, managerial social capital, and managerial human capital. Our study suggests that there are some elements of managerial mind-set which correlate well with DMC. The majority of our case studies concerned some companies based in Poland, which became finally successful in international markets, but they had difficult beginnings as they all started either still in the communism era in Poland or in the painful stage of early transformation. Thus, entering foreign markets in the case of these companies must have been based on entrepreneurial spirit spread among founders and managers of these companies. Our research illustrates that such entrepreneurial management is needed also in further stages of internationalization, especially in case of discrete changes in the environment. For the companies we investigated, the global financial crisis was the good example of such change and the companies needed to make some radical changes in their marketing mix to handle new circumstances (e.g., Atlas Group). Clearly, such radical changes demand “readiness for change” as an element of managerial mind-set.

Our research is not free from limitations. Firstly, our research is qualitative, so any generalizations from our case studies cannot be straightforward. Further studies should go beyond single setting in Central and Eastern Europe and use larger samples to test if the strategies we identified appear to be statically significant in such datasets, thus, in turn, demanding some work on the measurement model of DMC. Prior studies in this area contain a lot of gaps, which may be treated as an incentive for the future. However, DMC similarly to DCV in strategy research does not seem to be only a fashion in academic research, because this construct corresponds well with the increased volatility of today’s markets and increased internationalization of all industries in general.

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Language Capabilities as a Leverage for Non-native English Scholars' Career



Anna L. Wiczorek

Abstract The aim of the study is to assess the role of English-language capabilities in leveraging career of a scholar whose first language is other than English and who faces challenges connected with contemporary expectations towards European scholars concerning publishing in top-tier English-language journals. The chapter discusses how scholars from Poland, as an example of a post-Soviet country, perceive the role of English language as a tool allowing them to meet the criteria of academic success understood now as productivity, membership in international teams and mobility. The study is qualitative and the informants are academic teachers working at public universities in Poland. They are all non-native speakers of English, mainly from the fields of humanities and social sciences, representing different positions (from research assistant to full professor) with IF publications extremes from 0 to 13 and age extremes from 27 to 70. Main study results concern good English speaking, writing and reading comprehension skills as factors positively contributing to non-native English scholar's success.

Keywords Language capabilities · English · Language skills · Scholars' productivity · Poland

1 Introduction

The success of a contemporary scholar is nowadays strongly connected with their research productivity (Wiczorek 2014a), and, according to Bergeron and Liang (2007), associated with institutional recognition (salary, rank), teaching effectiveness (e.g. indicated by student evaluations) and professional visibility (awards, editorial board positions). In the era of dynamic changes in European academia, the productivity of scholars is a hot topic not only from the perspective of an

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individual scholar but also from the perspective of human resource management at universities, because human resource management (HRM) systems at universities must somehow implement “publish or perish” culture among employees. This means that significant changes are being witnessed by today’s academia, especially in the countries where English language is not a native or first language, since productivity in international academia can be understood as publications in widely recognizable journals which are English-language journals (Wieczorek 2014b). In the countries that were not Western-oriented for many years, like, for instance, Poland, such factors as those connected with international publications or fellowships did not matter so much. The old system of academic promotion there dated back to the beginning of political transformation which fell to the early nineties of the twentieth century and was influenced by the law issued in the USSR in the years of Stalinism (Handke 2010). One may assume that a similar situation was witnessed in all or the majority of post-Soviet countries. This means that, after around 2010 when scholars all over contemporary Europe were facing institutional changes in the academia which concerned their professional development (Hicks 2009) and modification of procedures connected with obtaining higher positions at university, these changes were especially hard for those post-Soviet scholars. The new procedures and the criteria that are to be met in order to be promoted became more or less similar in the whole Europe, but very few people took into consideration the fact that scholars from countries that were under Soviet influence for many years were not as English-oriented and skilled as their Western colleagues. This, in turn, means that there may be different factors triggering and affecting their productivity than the ones referring to their colleagues from Western countries.

Although the productivity of scholars has been a matter of great concern among academics (Önder and Kasapoğlu-Önder 2011) for a relatively long time already, prior researches were mostly US-oriented or, generally, related to English-language Western countries (e.g. Bland et al. 2005; Flynn et al. 2011; Lee and Bozeman 2005). There were only a few studies in this area that were based on research conducted in very different cultural and institutional contexts (Wieczorek 2014a), and their results suggested that there are some important country-specific factors (Cruz-Castro and Sanz-Menéndez 2010; Hedjazi and Behravan 2011; Önder and Kasapoğlu-Önder 2011). Research carried out by Mitreğa (2014) focused on Visegrad countries (Poland, Hungary, Czech Republic and Slovakia) and the results proved that there are some productivity factors unique to these countries. This and other studies concerning Visegrad countries (e.g. Mitreğa 2014; Wieczorek and Mitreğa 2014b) focused on general productivity factors among scholars and not on the relation between productivity factors and levels of English of scholars under investigation which seems an interesting research direction as many of productivity factors, for instance, networking and grant-getting skills, rely on the knowledge of English (Wieczorek and Mitreğa 2014a). For that reason, the focus of this chapter is on the language capabilities as a leverage for non-native English scholars’ career. In the chapter, the Visegrad academy is shown as an example of post-Soviet academy facing challenges due to changed expectations towards its scholars. Then, general productivity factors identified for young Visegrad scholars are presented and, finally,

the study context, methodology, informants and main results are described. The study was carried out in Poland, so Polish context is discussed.

2 The Visegrad Academy as an Example of Challenges Faced by Post-Soviet Scholars

Visegrad countries include the Czech Republic, Hungary, Poland and Slovakia. All of these countries are situated in Eastern Europe and, because of such political reasons as the Soviet influence after the World War II that lasted till the nineties of the twentieth century, do not seem to be as developed as a majority of so-called Western countries like France, Germany or the UK. It can be observed for instance in the perception of success that Visegrad scholars hold: for many years to be successful as a scholar meant to be recognizable in the local environment (e.g. one's own university, country in a given area of research) and to be accepted by other (domestic) scholars (Wieczorek 2014a). The papers published in the past by Visegrad scholars mainly were monographs, local conference papers or articles in national journals in the field. They were written in the majority of cases in scholars' native language, not in English, and they were also based mainly on research carried out nationally or in neighbouring countries.

The explanation of such a state of affairs can be sought in the times when Visegrad countries were under the Soviet influence and people's contact with Western countries, Western literature and English language was restricted. The foreign language taught at schools was mainly Russian and this way scholars of those times, as non-English users, were not able to follow international literature concerning their field of interest. People who were promoted at those times are now high up the career ladder already (in the majority of cases they are professors), and they do not need to develop further career. As a result, younger generations of Visegrad scholars do not seem to have a right path to follow. Due to changes in the academia and new expectations towards scholars, they cannot follow the path of their older colleagues. What is more, the lack of tradition concerning publishing in impact factor journals in their countries, together with the unification of promotional criteria in Europe, makes it difficult for an average Visegrad scholar to be productive, and, as it has already been stressed, productivity is a crucial component of scholars' success. Authors in the field (e.g. Valle and Schultz 2011; Bergeron and Liang 2007) have discovered some important factors influencing scholars' success, but there seems to be a gap concerning English-language skills of scholars as factors leveraging their productivity and, as a result, their success. This gap exists due to the fact that most of the research in the field of scholar productivity was carried out in Western countries where most scholars are English-speaking. There were only a few attempts made to find links between levels of English of scholars and their productivity (e.g. Wieczorek and Mitreęa 2014a, 2017a, b, c), and the results of the research showed that the knowledge of English is an important productivity factor among

Visegrad scholars. In order to understand how English language may leverage other productivity factors, it is worthwhile to discuss productivity factors identified for post-Soviet scholars, on the basis of research carried out by Mitreġa (2014) and concerning factors leveraging productivity of young scholars in Visegrad countries.

3 General Career-Leveraging Productivity Identified for Post-Soviet Scholars

So far, general productivity factors for young Visegrad scholars have been identified (Mitreġa 2014; Wieczorek 2014b). To understand the results, one should understand what is meant by young scholars and which productivity factors were identified. By young scholars, the researcher meant scholars up to the age of 35, who are officially called young scholars by the appropriate authorities in the countries under investigation (the Czech Republic, Hungary, Poland and Slovakia). The research was carried out in 2014 and such productivity factors as research abilities, academic networking, generational clash, academic writing skills, general English skills, time allocated to research and personality factors were identified as a result of explorative study by Wieczorek (2014b) carried out among 19 young and successful scholars born and working in Visegrad countries. The explorative study was a part of broader research coordinated by Mitreġa (2014). In further research by Wieczorek and Mitreġa (2014a), such issues as the general roles of language skills and affective factors have been discussed. All of the above researches are interconnected, and the productivity factors that were identified as a result of them are combined and presented below:

The research productivity factors identified for scholars from Visegrad countries that are presented in Fig. 1 are briefly discussed below. As far as English-language skills are concerned, it was concluded that generally they are crucial in becoming an internationally productive scholar since academia is international and English is a *lingua franca* and for that reason the knowledge of English is a key factor in research productivity. It was stressed that it is not enough to know English just to read or write in this language, but also to interact with others in English and critically analyse papers written in English (Wieczorek and Mitreġa 2014a). As far as mentoring is concerned, it means cooperating with a more experienced scholar, usually one with experience in publishing papers in impact factor journals. In the case of Visegrad scholars, the majority were scholars from a Western country like, for instance, the UK, Germany, or the USA, met at a foreign conference. Mentors may help less experienced scholars to do better research, write better papers or introduce them to a network of the people who are experienced in a given field (Wieczorek 2014b). When it comes to personality, Wieczorek and Mitreġa (2014a) concluded in their research that such personality traits as inhibitions and self-esteem contribute to the productivity of scholars in such a way that low levels of inhibition and high levels of self-esteem contribute in a positive way to networking skills and willingness of

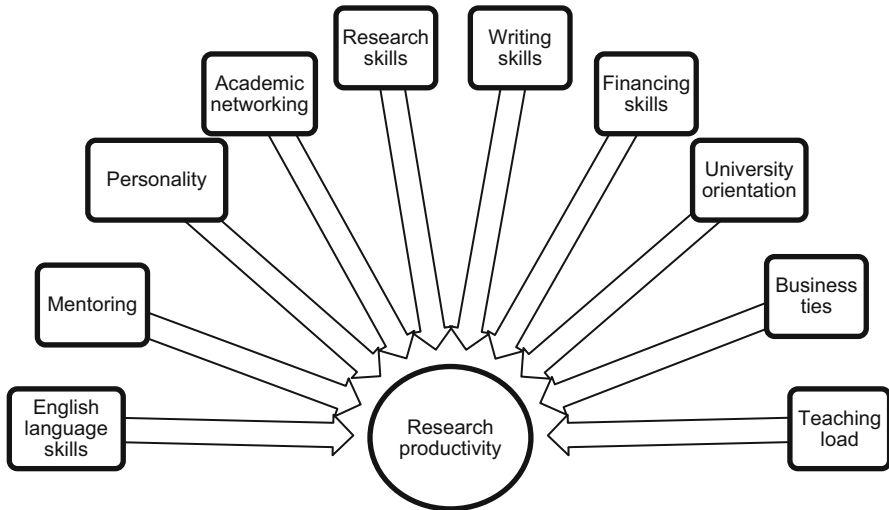


Fig. 1 Research productivity factors identified for Visegrad scholars. (Source: Author's own source, based on research results of Mitreġa (2014), Wieczorek (2014b) and Wieczorek and Mitreġa (2014a))

scholars to use English at conferences, or while disseminating research. Mitreġa (2014) also found correlation between networking skills and success of scholars manifested by high productivity due to the fact that good networking skills help a scholar to find mentors or teams of experienced English-speaking scholars who they may do research and disseminate its results with. Research skills refer to the ability to select and analyse literature relevant to the field under investigation and to design and carry out research and analyse the research data in a proper way, often with the help of a software dedicated to analysing quantitative data. Writing skills, in turn, refer to the ability to describe research design and results in a reader-friendly way (Wieczorek 2014b). As far as financing skills are concerned, it is, according to Wiecezorek (2014b), important to have grant-getting skills in order to produce good research and then disseminate it more easily in prestigious journals. Money for research helps researchers process data with a good software which is usually not provided by the university in Visegrad countries; money also guarantees networking opportunities due to the fact that the researcher can pay for conference attendance, workshop sessions, etc. University orientation is connected with the previous issue elaborated on, since it determines the willingness of a given university (namely its authorities) to finance research, conferences, etc. If a university is foreign-oriented, the authorities are more likely to be generous when it comes to covering costs of frequent research visits, conferences or workshops in a foreign country. The authorities of universities who are more domestic-oriented may not be willing to allocate funds to such expenses as the ones discussed above and, as a result, may expect that researchers will solely depend on self-generated funds, like grants. This makes especially the life of young and inexperienced scholars difficult as they do not

have enough skill or big enough portfolio to get a grant and may not become a productive researcher as a result. Business ties are, according to Wieczorek (2014b), important, to find respondents to do research (the researches discussed were carried out in the field of management and business, so the respondents were also producing research in a similar field and needed ties with business). Last but not least, teaching load was taken into consideration while analyzing productivity factors of scholars and the conclusion was that scholars from Visegrad countries, unlike their Western colleagues, had to devote much more time to teaching due to financial reasons (e.g. their salaries are not as high as salaries of their Western colleagues). Very often they hold two positions, which sometimes equals around 500 contact hours with students as per academic year, as compared to around 200 contact hours of UK scholars, for a comparable salary. For that reason, the time spent on teaching and busy schedule of Visegrad scholar can be treated as a factor negatively contributing to research productivity (i.e. hindering productivity). On the other hand, however, in the case of most successful scholars who were investigated, a heavy workload was not reported as a factor hindering productivity (Wieczorek 2014b).

All of the above discussed factors refer to research productivity of scholars from Visegrad countries, and many of them are interconnected, for instance, personality factors and English skills, research skills and writing skills. What is also visible here is that many productivity factors discussed above can be related to English-language skills. There was not, so far, research devoted to the relation between English language and productivity factors in the field of academic achievement, especially in post-Soviet countries, so it is a gap that is worth filling.

4 Language Capabilities as a Leverage for Non-Native English Scholars' Career: Qualitative Study

The purpose of the study was to discuss the role of English language in leveraging career of scholars who are non-native English persons living in a post-Soviet country where for a long time, generally, there was no tradition of publishing in English, visiting Western countries or networking with foreigners. Productivity is, undeniably, a leverage to scholar's career and it has been a subject of heated debate for over two decades (e.g. Landry et al. 1996; Tuire and Erno 2001; Kyvik 2013), but the vast majority of these studies were conducted only in English-speaking and highly developed countries (e.g. Bland et al. 2005; Flynn et al. 2011; Lee and Bozeman 2005). Few studies conducted in very different cultural and institutional contexts suggested that there are some important country-specific factors (Cruz-Castro and Sanz-Menéndez 2010; Hedjazi and Behravan 2011; Önder and Kasapoğlu-Önder 2011), so the international validity of prior studies may be easily questioned and there is a need for investigating which factors affect productivity of scholars working in other, non-English-speaking/non-Western countries (Mitreğa and Wieczorek 2015). Studies concerning Eastern context (e.g. Wieczorek and Mitreğa 2014a) are

focused on general productivity factors among scholars from Visegrad countries. For that reason, it is worth investigating how language capabilities leverage success of scholars from post-Soviet countries and how much the productivity factors that were identified for them are English-language dependent.

4.1 Study Context and Approach

The study was carried out in Poland, as Poland is one of the post-Soviet countries where from over twenty years borders are open and people have access to world, but still there is no strong tradition of publishing in prestigious English-language journals. There are single scholars who are very successful and have impact factor (IF) publications, but they are still in the minority, especially in such fields as humanities or social sciences (Mitreǵa 2016). In the year 2018, a new law (called *Science Constitution 2.0*) was passed concerning development, promotion and evaluation of scholars and nowadays a strong need can be observed to publish high-quality papers in journals from the list provided by the Ministry. The list embraces IF journals and other journals that are considered prestigious in their fields, on an international level. It now concerns all scholars and their effectiveness is to be measured once in 4 years, and if they do not achieve the assumed results, the university is likely to be financially punished; therefore, the pressure exerted on academics is now very strong. For all those reasons mentioned above, Poland seems to be a very interesting research context nowadays, especially in view of the fact that most European countries have a similar criteria of scientific achievement nowadays, so Poland may be a representative of post-Soviet countries and can be an interesting case to observe for other countries from the former Soviet bloc that may soon face similar challenges.

The study approach is qualitative as the data collected was of very personal nature. It entailed on the side of the informants talking about their achievement striving, success and failure in relation to occupational context and, most of all, using in this context English language that is not their native language. These are rather sensitive issues with strong propensity towards social desirability phenomenon; therefore, in such situations the researchers should be close to the subjects and gain their trust, and, at the same time, take care so that they do not try to present themselves in a better light than they really are. According to Gibbs (2010) or Konecki (2000), qualitative research methods work very well in such a context. The tool selected for the study was a semi-structured interview carried out by the author of the paper. The interview comprised discussion questions concerning general productivity factors, the role of English language in leveraging scholar's own productivity and the role of three language skills (reading, writing and speaking) in leveraging scholar productivity levels. The interview was carried out in Polish, then transcribed and then the data was categorized and analyzed according to the principles of QDA (qualitative data analysis). After that, the categories were translated into English.

4.2 Informants' Characteristics and Study Objectives

The informants were academic teachers working at public universities in Poland. They were all non-native speakers of English, mainly from the fields of humanities and social sciences, representing different positions (from research assistant to full professor) with IF publication extremes from 0 to 13 and age extremes from 27 to 70. The data was collected till saturation was achieved and it was achieved when 21 semi-structured interviews were carried out. The sample was composed of subjects taking part in previous research coordinated by Mitreęa (2014) that was devoted to networking and general productivity factors. The author of the paper was collecting qualitative data in that research and from that sample that was composed of 25 respondents selected from those who previously claimed that English language had a significant influence on their career.

The researcher in this study aimed to deepen their understanding concerning the role of English language in leveraging career of scholars—namely they wanted to investigate if English-language capabilities in general had strongest influence on the productivity of scholars, or maybe, just selected English skills. The other interesting issue to investigate seemed the influence of English skills on certain productivity factors (the productivity factors identified in prior researches and shown in Fig. 1). For that reason, the study main objective was to investigate and discuss the role of language capabilities in leveraging non-native English scholars' career. The detached objectives concern the influence of language capabilities on the general factors leveraging productivity of scholars.

4.3 Main Study Results

As far as the results are concerned, when asked about the role of English language as a leverage to scholar's career, all informants admitted that it is nowadays big, because of the pressure to publish papers in English-language journals and to disseminate research results on international level. The informants were then asked if English skills are one of the general productivity factors, or a factor leveraging some of or all other productivity determinants that they previously had identified (in the prior research devoted to general productivity factors). In the majority of cases, the informants claimed that without English capabilities, they would not be able to meet some of the productivity criteria. Those who claimed that were further investigated—they were asked to enumerate which general productivity factors, in their opinion, depended on the level of English. The factors that they enumerated were academic networking, research skills, writing skills, mentoring and financing skills. Then, the informants were asked to elaborate on the enumerated factors and try to conclude how English language influences them. The researcher then told them that general English capabilities can be divided into the skills of writing, reading, speaking and listening and asked them to think which skills exactly were

needed as a leverage to the productivity factors that depended upon the knowledge of English. The researcher then categorized the answers and they are discussed below.

4.3.1 Good English-Speaking Skills as a Leverage to Scholars' Productivity

The informants, in the majority of cases, stated that good speaking skills correlate with the general productivity factor of networking. When asked, to explain it in detail, they claimed that they need to speak freely in English in order to find the right people to do research and write papers with. As they are of the opinion that scholars from Western countries are their target partners, they need to communicate with them in English. What is more, three informants stated that they need to attract such potential partners with interesting research results, nice presentations, etc. and that international conferences are the best occasion. This means that good English-speaking skills are necessary not only to network with other people but also to disseminate research smoothly (e.g. during oral conference presentations), to answer questions concerning this research and to small-talk with other conference participants, with hope to find research partners. The informants stressed that the skill of speaking a foreign language is the most important one, since one uses it while interacting with others and it cannot be prepared in advance, apart from presentations. Some of them claimed that they sometimes ask a professional (an interpreter or English teacher) to proofread or translate their papers, or to proofread their PowerPoint presentations, but then they anyway need to speak themselves. Few of the informants found conference presentations in English extremely stressful, but were of the opinion that one cannot avoid them if he or she wants to become more international and productive. One informant expressed a view that a lack of good English-speaking skills is very easily visible as compared to other skills due to the fact that one cannot entirely prepare and “direct” the international encounters that they have with others. The study results clearly show that good English-speaking skills leverage the productivity of scholars as they enable scholars to network with foreign colleagues, give conference presentations and disseminate their research this way and socialize with people at conferences. These all speaking opportunities may lead not only to finding potential research partners, but also to finding mentors who are experienced scholars who could coach their less experienced colleagues from less developed countries and offer advice and guidance in doing research, writing impact factor papers or selecting further research partners.

4.3.2 Good English Writing Skills as a Leverage to Scholars' Productivity

English writing skills were enumerated by the informants just after speaking skills, as crucial in leveraging productivity. All informants claimed that they need good English writing skills in order to write high-quality papers. Most prestigious journals

and nearly all IF journals are in English; therefore, a researcher needs to possess a good command of English and well-developed writing skills if they want to publish in high-rank journals. Some informants (those with very little international publishing experience) stated that in case of a lack of good writing skills, one can ask a specialist for help (i.e. they may have a text that is written in their native language, translated), but the most experienced ones firmly stated that it was not a good idea since not all translators know the jargon and metalanguage of a given field; besides, writing good papers entails also very thorough review of literature, usually in English, which means that the author should have a good command of English in general. Those informants who have high grant-getting skills additionally claimed that good English writing skills also contribute to financing skills due to the fact that nowadays, in case of most Polish ministry grants, one needs to prepare part of the application in English because the grant application is also sent to foreign reviewers. One informant mentioned that in his case, good writing skills were a gate to find a mentor because he did not have financing for many foreign conferences and decided to look for a mentor via e-mail. He sent numerous cooperation invitations before he finally found a mentor who introduced him to a team of researchers who he still cooperates with. To sum up, it is visible that the more experienced the scholars are, the more they appreciate good writing skills and the more aware they are that having one's own paper translated into English is not a path to an IF publication and productivity. It is also visible that good writing skills contribute to skills connected with finding external sources for financing research, which also contributes to productivity. Some degree of skill is also necessary to write simple messages in English—for instance to send cooperation invitations to more experienced scholars.

4.3.3 Good English Reading Comprehension Skills as a Leverage to Scholars' Productivity

In the research concerning general productivity skills, the respondents stated that research skills are extremely important determinant of productivity (Wieczorek 2014b). By research skills they meant the ability to do literature review, design high-quality research and carry it out. All but one informant of the current study claimed that good research skills refer to research that is done internationally and it means browsing through databases, identifying relevant keywords, finding papers and doing a thorough literature review in English. To do so, a scholar must possess a good command of reading comprehension skills. It is not enough to find one high-rank paper and have it translated—one must know English keywords, English names of given phenomena and it could be achieved as a result of long-term contact with English field literature. Those informants who are experienced researchers with IF publications stressed that a scholar needs good reading comprehension skills not only in order to do a thorough literature review, but also to select a good research method and tools and, in their opinion, the majority of manuals devoted to research methods and software are in English. It, in their opinion, does not only mean general English reading comprehension skills, but comprehension skills with relation to

reading manuals and instructions, so “technical” vocabulary is also necessary, to be able to operate software or read about elaborate research methods. The majority of the informants claimed that reading comprehension skills do not depend only upon the knowledge of vocabulary that is relevant to describe given phenomena, but also on the ability to read in English, understand texts and being able to process them. It, again, is a long-term process and cannot be achieved fast. It is visible that good English comprehension skills are very crucial in productivity as research skills depend on them heavily.

5 Conclusions

The role of English language in leveraging scholars' career is undeniably significant, and it was also proved in previous researches (Wieczorek 2014b; Wieczorek and Mitreęa 2014a; Mitreęa and Wieczorek 2015). This study, however, is the first one in the field of research productivity of post-Soviet scholars, which so thoroughly looked at different components of English competence and their relation to selected productivity factors. In general, it is noticeable that the three skills of speaking, writing and reading in English do play a role in leveraging productivity of those scholars, whose native language is other than English; furthermore, the three skills and their influence on given productivity factors are interconnected. In order to be a good researcher, one needs to combine abilities to do literature reviews (to read and comprehend) in English, to design and to do research using various methods, then one must “pack” his or her research nicely, which means good writing abilities (writing skills), and, finally, one must “sell” his or her ideas to others at the stage of research dissemination (speaking skills). What is more, scholars also need to possess a good command of English in order to find potential foreign partners, to do research, to publish papers together or to be mentored. Without written and spoken English-language skills, it would not be possible. It should be taken into consideration that scholars from developed Western countries find it much easier to be productive than their colleagues whose native language is not English, or who are from countries which for many years did not have frequent contacts with English language or Western tradition of publishing papers in internationally recognized journals (like scholars from the former Soviet bloc, the example of whom are scholars from Poland). Although all scholars face new challenges all the time and must take strenuous effort to publish papers in high-rank, top-tier journals and are influenced by the discussed general productivity factors, scholars from post-Soviet countries have linguistic challenges that scholars from Western countries do not face at all (those ones born, brought up and working in an English-speaking country, like the UK, the USA, Australia) or face them at a low level (like scholars from such developed countries as Germany, France and Scandinavian countries, where English has for many decades been taught as a foreign language, even to small kids and where there have been open borders for a very long time). For that reason, this study gives new insights into the field of research productivity of scholars, especially in

view of the fact that it contributes to an emerging “hot” topic in management research in “publish or perish” era (Valle and Schultz 2011). The study, of course, has its limitations, which are going to be discussed further in this chapter.

As far as study limitations are concerned, they are like in the case of majority of qualitative studies—they were not carried out on big, representative samples and analyzed with quantitative methods, which means the results should be further validated. On the other hand, in order to understand human behaviour and emotions, the researcher needs to come into real contact with the respondents, gain their trust and ask the crucial questions in numerous ways, which is feasible mainly with qualitative methods (Konecki 2000). In this project, the most important questions were not “how many scholars think that English language skills contribute to research productivity”, but rather “how do certain English-language skills contribute to different productivity factors and how the scholars under investigation understand it and feel about it” and for that reason qualitative study was carried out. On the other hand, it would be interesting to carry out quantitative analyses to validate the results and find out more about it—for instance to investigate, using ready-made scales, what self-esteem and personality levels the respondents manifest and how these levels influence their language skills (especially speaking skills that heavily depend on affective factors) and to what extent they influence other general productivity factors (e.g. academic networking skills, business tier or mentoring).

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Healthcare Project Management Model Approach



Tadeusz A. Grzeszczyk and Marek Zawada

Abstract The aim of this chapter is to present the outline of a model approach for project management in the healthcare sector on the example of clinical trial projects. Special attention was given to non-commercial projects. The authors try to fill the identified gap concerning model approaches and methodologies for managing complex and unique projects in the field of healthcare (particularly R&D projects). The subject of the research is the problem of improving clinical trial project management in the healthcare sector. The undertaken studies include the following objects: research units (including medical schools), pharmaceutical companies, and contract research organizations operating in Poland in the field of R&D. Data used in the research were collected in the form of the results of focused interviews with project managers or persons responsible for their implementation (experts, management staff, researchers), using a questionnaire survey that was prepared for the analysis of applied methods, methodologies, and project management tools for healthcare project management. The results of the presented study are identification of key elements of the model approach to managing healthcare projects, creation of a basis for deepening scientific inquiries regarding the issues of improving the efficiency of their management, formulation of a proposition of clinical trial project management model, and building of foundations for the development of research on critical success factors of healthcare projects.

Keywords Project management · Healthcare projects · Clinical trial projects · R&D · Model approach for project management

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1 Introduction

The term “healthcare” defines the whole of activities undertaken by various entities operating in the state and society, to protect the health of the individual, as well as the entire population. Actions in the field of health protection include conducting clinical trials aimed at broadening medical knowledge related to the treatment, diagnosis, and prevention of diseases (U.S. National Library of Medicine 2018). Noncommercial research is becoming increasingly important in the health sector. Identifying research as noncommercial is important because it is conducted in an objective manner, regardless of the influence of commercial institutions. There are fundamental differences between the commercial and noncommercial research in terms of the applied methods of project management, cost management, the general image of research teams, sometimes the reliability of the results obtained, and the rules for publishing them.

According to medical law in Poland, a noncommercial clinical research project may be defined as a human trial process to discover or confirm clinical, pharmacological, and pharmacodynamic effects of therapeutic products, or to identify adverse effects of investigational medicinal products, or to track the absorption, distribution, excretion, and metabolism of researched medicinal products, bearing in mind their safety and efficacy (Act of 6 September 2001).

Clinical trials management is usually implemented using project management theory and the following project management stages: initiation, planning, execution with monitoring and controlling (McCaskell et al. 2019). Implementing these types of projects is often difficult, with significant challenges regarding methodological approaches that are used. Not only the effectiveness of implemented project activities is of key importance, but the acceptability of applied methods and models of healthcare project management is required. Significant requirements are formulated for them that have not yet been met. In the case of model approaches for project management in the healthcare sector, readability and transparency of the processes used, efficient exchange of information and knowledge (positive, open communication pathways), and acceptance of the environment for the solutions used should be ensured (Arundel and Gellatly 2018).

During planning and implementation of clinical trials project management processes, the most important roles are not played by researchers, investigators, and professors, but key members of trial teams are primarily trial managers using appropriate project management models. The literature emphasizes the limited number of models, methods, and tools supporting decision-making related to management of clinical trial projects (Treweek and Littleford 2018).

The aim of the chapter is to present the outline of a model approach for project management in the healthcare sector on the example of clinical trial projects. As part of the research a questionnaire was prepared for the analysis of applied methods, methodologies, and project management tools for healthcare project management. The following research methods were also used: literature research (approaches, models, and methods of R&D project management) and participating observation

(completed projects, currently implemented and planned). There is fundamental research gap regarding solutions (model approaches and methodologies) for managing complex and unique projects in the field of healthcare (especially R&D projects). The authors try to fill the identified gap concerning useful healthcare project management models.

2 Fast-Growing Healthcare and Clinical Trials Sectors

Clinical research projects of a commercial and noncommercial character are implemented, among others, by universities or other scientific institutions with the authority to award academic degrees, healthcare entities, researchers, patients’ organizations, researchers, or other legal persons or organizational units without legal personality, whose business purpose is not to profit from conducting and organizing clinical trials, manufacture, or marketing of medicinal products.

The healthcare sector represented by commercial and noncommercial clinical trial projects is a strategic part of the research and development sector. Approximately in 2010 in many European countries (e.g., in Finland) higher education institutions began to be reformed, which resulted in more effective creation of conditions for conducting various research, also in healthcare and clinical trials sectors (TEM 2014). These reforms contribute to the growth of spending on pharmaceutical as well as healthcare R&D and is confirmed by the historical statistics and forecasts presented in Figs. 1, 2, and 3.

Expenditures on research and development activities in the healthcare sector (in particular, in its pharmaceutical part) are increasing from one year to the next. The number of new clinical trials registered is also growing steadily. Poland is in the top five countries with the largest number of clinical trials. One-third of this market belongs to the USA. Table 1 presents data on the number of researches conducted in

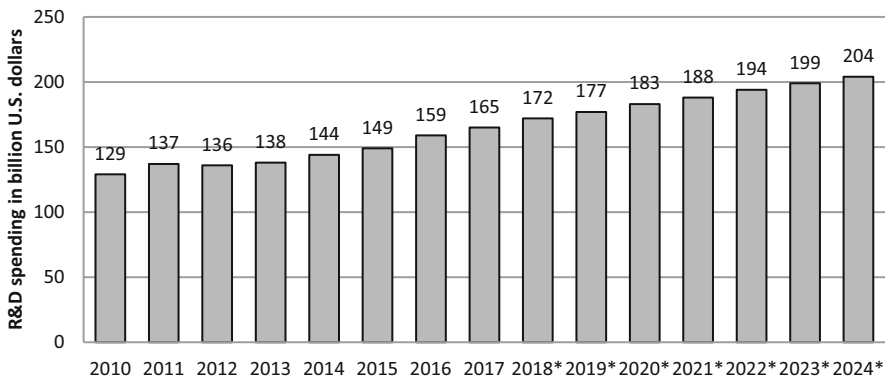


Fig. 1 Total global spending on pharmaceutical R&D from 2010 to 2024 (in billion U.S. dollars). (Source: Statista 2018a)

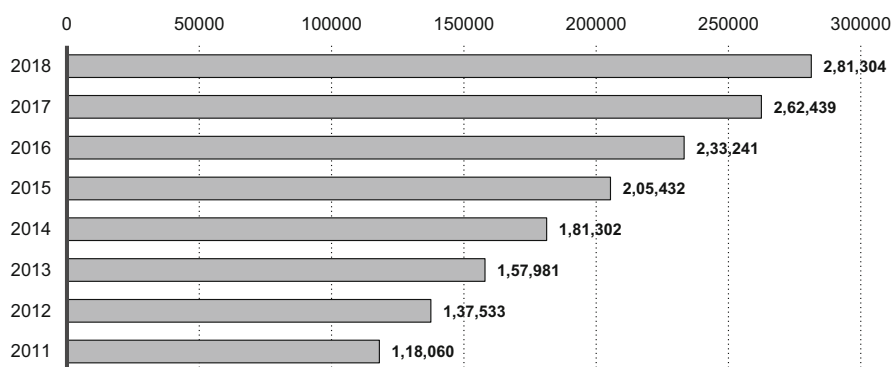


Fig. 2 Total number of registered clinical studies worldwide since 2011. (Source: Statista 2018b)

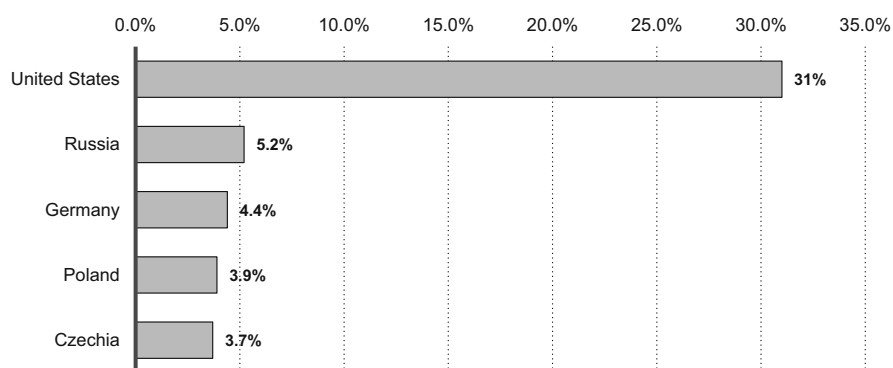


Fig. 3 Top 5 clinical trial participant countries worldwide in 2015–2016, by share of participants (in percentage). (Source: Statista 2018c)

Table 1 Number of registered clinical trials in Poland

Year	No of registered clinical trials	No of registered non-commercial clinical trials	Percent of non-commercial clinical trials
2011	495	3	0.6
2012	449	8	1.8
2013	422	2	0.5
2014	396	6	1.5
2015	441	9	2.0
2016	458	15	3.3
2017	453	15	3.3

Source: Polish Association for Good Clinical Practice 2018

Poland. The total number of applications for registration of a clinical trial is 400–500 a year, of which around 3% is noncommercial. For comparison, according to the Polish Association for Good Clinical Practice, 20–40% of researches in Western

Europe are noncommercial. Despite the significant development of the healthcare market (including clinical trials), there is a shortage of research in this field of project management, in particular, the lack of adequate methods and models supporting the management and evaluation of clinical trial projects.

Clinical trial projects are very complex and multistage undertakings. They are the last stage of drug research, before its launch on the market. These studies are necessary to evaluate the effectiveness and safety of newly developed drugs. Clinical trials typically consist of four phases and are the longest and most expensive stage of drug development.

During the first phase of the research, the safety of the test agent is initially assessed. The goal of the second phase is to determine whether the new drug works in a specific group of patients and is safe. During this part of the work, the relationship between the dose and the effect of the medical product is also established, which allows the final determination of the dose used in the further phase of the study and the necessary assessment of the effectiveness and safety of the medicine. In the third phase of clinical trials, the effectiveness of the test drug is finally confirmed in the case of a specific disease. The aim of this part of research work on the new therapeutic agent is to determine the relationship between its safety and effectiveness during short-term and long-term use. The fourth phase of clinical trials applies to medicines already registered and currently on sale. It aims to determine whether the drug is safe in all indications recommended by the manufacturer and for all groups of patients. Phase four of the research additionally verifies previously obtained results (National Comprehensive Cancer Network 2018; U.S. Department of Health and Human Services 2018).

3 Healthcare Project: Clinical Trial Case

Project management is a dynamically developing field within the discipline of management sciences. Research in this field is conducted by practitioners and the academic community and initiatives common to both trends are undertaken. Problems of knowledge transfer between scientists and practitioners are the subject of research available in the literature (Glodzinski and Marciniak 2018). It is similar in the case of clinical research projects. Research that is carried out responds to the needs of practitioners from medical environments.

The clinical trial design can be defined as a project—it has a specified beginning and end, resources (human, financial) are limited, and research goals are unique. In addition, the following rules are observed (Goodarzynejad and Babamahmoodi 2015):

- Goals are set in advance.
- The necessary resources are identified to achieve these objectives.
- Actions should be planned to achieve the objectives.
- The work should be constantly monitored.

- Performance criteria should be defined.
- The results are to be evaluated.
- The project is closed when the goals have been achieved or if the goals are not reached or cannot be implemented, or when the project need no longer exists.
- The activity follows according to the previously prepared protocol of a clinical trial, and this document is also a tool for monitoring progress.

The determinants of the quality and progress of a clinical trial can be indicated by time constraints, patient–doctor relations, proper selection of patients, lack of proper results, and necessity to obtain trust and consent of the patient (Prescott et al. 1999). Active management of every aspect of the process is the key to the project’s success (Farrell and Kenyon 2014). The clinical trial has the same characteristics as other business projects defined in the field of project management (Farrell et al. 2010). However, the planning phase of the clinical trial design is of particular importance (Patel 2018).

The five most-distinguished basic processes during clinical trial management are (Patel 2018; Burke 2018):

- Initiation (defining and formulating clear goals)
- Planning (organizing a team with the required knowledge and skills, setting the schedule and the appropriate methodology, defining resources to achieve project goals, planning and risk management)
- Project implementation
- Monitoring and controlling (operation of the quality control system, monitoring of progress in accordance with the project program)
- Analysis and reporting

In management processes of healthcare projects and clinical trials, traditional approaches and the previously known life cycle stages are not useful. It is necessary to look for new solutions and develop research in this area. For example, in the case of healthcare integration projects, attempts are being made to combine traditional project management methodologies with solutions inspired by change management. There are studies available in the literature, which show that as a result of an improvised and intuitive combination of both methodologies and these solutions, as well as the application of change management in the early stages of the project life cycle, promising results can be achieved (Gordon and Pollack 2018). With the use of different stages of the life cycle and different methodologies, there is a necessity to choose appropriate methods and evaluation approaches, which are based, for example, on the use of mixed systems (Grzeszczyk 2018).

Sometimes when describing the management of clinical trial projects, a limited division into the following three key stages is used (Doganov and Yanev 2006; IMARC Research 2018): first—activities before the start of the research (preparation of the research plan and the clinical trial protocol, risk assessment, as well as resource identification); second—activities during the study (implementation of plans, training of the research team, evaluation and selection of research centers,

Table 2 Typical life cycle phases and activities of clinical trial projects

Phases	Conceptual	Planning	Implementation	Analysis, publication
Activities	Protocol synopsis	Protocol	Enroll subjects	Primary/secondary analysis
	Schedule of activities	Model Informed Consent Form (ICF)	Distribution of drug	Submit abstract
		Sites selected	Answer protocol/CRF questions	Submit manuscript
		Manual of Procedures (MOP)	Take incident calls	Submit Clinical Technical Report (CTR)
		Case Report Forms (CRF)	Serious Adverse Events (SAE)	Post-hoc analysis
		Institutional Review Board (IRB) approvals	Dosage adjustments	
		Contracts with third party	Premature withdrawals	
		Build database	Drug disclosure	
		Drug packaging/labeling	Data query process	
			Clean/close database	
			Transfer database to Biostatistics	

Source: Based on Goodarzynejad and Babamahmoodi (2015)

monitoring of the research, and change management); and the third related to the end of the research (activities after the study—final audit, data collection and analysis).

According to the Project Management Institute (PMI) methodology, the following five phases of the life cycle of projects can be distinguished: initiating, defining and planning, executing, performance monitoring, and closing. In the case of healthcare projects, similar stages are also distinguished (Schwalbe and Furlong 2017).

The following four phases (Table 2) are distinguished during the implementation of clinical trial projects (Goodarzynejad and Babamahmoodi 2015):

- Conceptual—preparation of protocol synopsis, i.e., develop assumptions regarding the research scope and prepare a flowchart of activities.
- Planning—preparation of the final version of the protocol and a set of project documents, such as a description of standard procedures, an informed consent form, a clinical observation chart as well as selection of medical research centers for conducting study, obtaining the consent of the Bioethical Commission, preparation of a database
- Implementation—the fundamental research phase—distribution of medicines, management of adverse events, data validation

- Analysis—closing the study, statistical analysis of data obtained during the research, preparation of the final report and sometimes scientific publications.

The following are the key challenges associated with running and managing clinical trials (Goodarzynejad and Babamahmoodi 2015):

- Implementing and maintaining effective management systems and techniques in response to the needs of trial projects
- Registering patient groups as quickly and efficiently as possible
- Identification of appropriate research centers and establishing realistic expectations regarding registration
- Gaining ethical acceptance

The challenges related to considerably complex healthcare regulations, the need to record each event minutely, and the significant responsibility and validity of the activities carried out should also be mentioned. This requires relying on extremely committed personnel, often working according to flexible working time.

4 Pilot Study

This part of the chapter is a synthetic description of the pilot study carried out, the subject of which was to identify the elements shaping the project management model in the healthcare sector on the example of clinical trial projects (including noncommercial clinical trials). The results of this research may be helpful in the processes of identifying project management conditions in the healthcare sector, as well as determining factors of success and failure of healthcare projects.

The subjects of the study were people professionally connected with running projects in the healthcare sector—employees of medical universities, contract research organizations, as well as specialists working on behalf of companies from the pharmaceutical sector. The group of researched projects was limited to projects of a clinical (including noncommercial) nature. The applied research methods are literature analysis, participant observation, and interview using a research questionnaire. The research questionnaire was addressed to people who are professionally involved in conducting clinical trials, including noncommercial clinical trials—experts, management staff, and researchers. In total, eight experts took part in the survey.

The survey consists of 13 questions. The respondents were asked to indicate the role they play in clinical trial projects. Subsequently, they were asked about experience—the number of projects due to their value, the research phase, as well as the duration of the project. Three questions related to project management methods and tools. The respondents were asked to specify the methods, methodologies, and tools they know and apply and whether they use them at the project planning stage. In the case of a negative answer, they were asked to indicate reasons for use/non-use. Gantt chart, logic matrix, critical path method (CPM), Program Evaluation and Review

Technique (PERT), Prince2, PMBoK, Scrum, theory of constraints, and work breakdown structure were referred to as the methods and tools.

The remaining questions concerned the following problems:

- Elements that have the greatest impact on the smooth and effective launch of noncommercial clinical trials.
- The most important conditions, the fulfillment of which translates into success, and failure to meet—the failure of noncommercial clinical trials.
- The most important milestones/key stages of noncommercial clinical trials.
- What should be improved at the stage of planning clinical trial projects.
- Which element of the surroundings of projects of noncommercial clinical trials is the most important.
- Which entity plays the most important role in this type of projects.

Respondents were also asked to state their opinion on the anticipated development of the market for noncommercial clinical trials in Poland.

5 Research Results

Below is a summary of the answers obtained during interviews using a research questionnaire. Experts who participated in the study have at least five years of experience working on clinical trial projects, including the following roles: researchers, study coordinators, and clinical trial assistant (Table 3).

In most cases, the indicated methods and tools (Table 4) are not known, nor are they used. Moreover, one of the respondents indicated that he did not know any of the above. The respondents explain this state both by their lack of need to use them and the shortage of knowledge about the topics of these methods. The scarcity of the need to use these methods and tools given by the respondents may result from the lack of knowledge about their capabilities. Among the most well-known methods and tools are Gantt charts, work breakdown structure, and critical path method—used in planning the study in order to arrange the sequence of activities that are necessary to perform.

Among the elements that have the greatest impact on the smooth and effective launch of noncommercial clinical trials (Table 5), the most appropriate selection of

Table 3 Respondents answers

	Eight respondents							
	1	2	3	4	5	6	7	8
Principal investigators	x							
Clinical investigators		x					x	x
Clinical coordinators			x		x			
Clinical trial monitors								
Other persons				x		x		

Source: Own study

Table 4 Methods, methodologies, and tools

	I know	I use	I use at the planning stage
Gantt chart	7	7	7
Logic matrix	2	1	–
Critical path method (CPM)	3	2	2
Program Evaluation and Review Technique (PERT)	1	1	1
Prince2	1	1	1
PMBok	1	1	1
Scrum	1	–	–
Theory of constraints	2	1	1
Work breakdown structure	5	3	3
Other	–	–	–

Source: Own study

Table 5 Elements of efficiency

Elements	Number of responses
The right choice of patients	2
Proper selection of research centers	6
Proper selection of researchers	1
Choosing the principal investigator	1
Choosing the research coordinator	–
Cooperation with the Bioethical Commission	2
Cooperation with Office for Registration of Medicinal Products, Medical Devices, and Biocidal Products	5
Cooperation with the Sponsor	5

Source: Own study

Table 6 Conditions for success and failure

Conditions	Number of responses
Precise definition of the study (including definition of goals)	5
The right plan for recruiting patients	2
The proper plan for monitoring the study	–
Proper risk analysis	1
A proper feasibility study analysis	7
Planning enough time to conduct the study	–
Providing the necessary resources to carry out the research	5
Access to current knowledge and information	1
Efficient communication in the research team	–
Occurrence of adverse events	–
Proper statistical analysis	–

Source: Own study

Table 7 Elements to improve

Elements	Number of responses
Organization of the work of the research team	3
Setting roles in the project	1
Creating a project schedule	3
Communication processes in the project	3
The division of the project into tasks and activities	6
Delegating tasks	3

Source: Own study

Table 8 Elements of the environment

Elements	Number of responses
Legal regulations	8
Development of modern technologies	–
Competition	–
Funding sources	7
Globalization of the economy	–

Source: Own study

research centers, and cooperation with the research sponsor, i.e., a person (often in noncommercial research) or an entity that sets the principles of the research process.

Among the conditions whose fulfillment translates into success and failure to fulfill, the failure of noncommercial clinical trials (Table 6) was most often indicated by the appropriate feasibility study. These studies include assessment of internal and environmental capacity, adaptation of the clinical trial for the study design, dose of the test product, type of comparator, type of patient, local environment, and evaluation of the clinical trial potential (Rajadhyaksha 2010). Other important factors are precisely defining the research and providing the necessary resources.

In the question about the most important milestones (key stages) of projects of noncommercial clinical trials, respondents mentioned a number of important elements. There is a consistent view among the experts that one of the most important stages is the approval of the study protocol—a document that is a procedure for conduct, without which the research process cannot be started. The respondents also mentioned aspects such as research synopsis, finding research funding, registering a study, developing a patient or volunteer recruitment method, first patient visit and last patient visit, ending recruitment, ending treatment phase, statistical analysis of results, report, selection of research centers and signing contracts, obtaining the approval of the Bioethics Committee, defining the purpose of the study, preparing the study documentation, and publication of results.

Collecting the responses of all respondents allows us to conclude that all elements of the clinical trial design planning indicated in the questionnaire should be improved (Table 7). However, most often the division of the project into tasks and activities was indicated, and the roles in projects were rarely determined.

Table 9 Important entities

Institutions	Number of responses
Sponsors	1
CRO companies	–
Participants/patients	1
Research centers (sites)	3
Researchers/doctors	3
Public administration bodies	–
Other financing institutions	3
Bioethics commissions	–

Source: Own study

Table 10 Market development forecast for non-commercial clinical trials in Poland

Forecast	Number of responses
Less than 3%	–
No change (3%)	4
From 3% to 10%	3
From 10% to 15%	1
Over 15%	–

Source: Own study

As the most important elements of the environment of projects of noncommercial clinical trials experts have consistently indicated legal regulations and sources of financing (Table 8).

The researchers (doctors), medical centers, and other financing institutions were indicated as the most important entity that plays the most crucial role in the project of a noncommercial clinical trial (e.g., The National Centre for Research and Development in Poland)—Table 9.

Experts assessing the perspective of the development of the market of noncommercial clinical trials in Poland over the next five years, measured by the share of noncommercial clinical trials in general clinical trials registered in Poland, most often indicated the answer “no change” (3%)—Table 10.

6 Clinical Trial Project Management Model

On the basis of the analysis of the literature on the subject and a pilot questionnaire survey carried out with the participation of experts in clinical trial project management, the most important stages of the project are presented graphically in Fig. 4.

In summary, the efficient model of project management in the healthcare sector (based on clinical trials) should be composed of the following stages:

- Defining the research (project)—determining objectives, synthesis of current knowledge, information on the therapeutic substance (medical product and other products), scope of work, budget, and implementation period

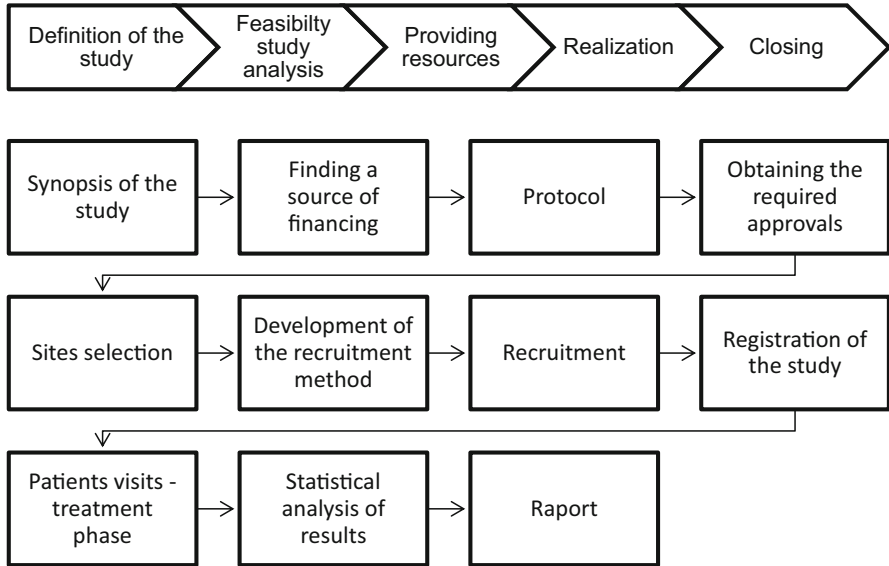


Fig. 4 Clinical trial project management model. (Source: Own study)

- Feasibility studies—research on the feasibility of project implementation, analysis of resources, including researchers, specialist doctors, available medical centers, and estimation of the availability of technical equipment
- Providing resources—employment of the main researcher, recruitment of researchers (medical staff), recruitment of patients and volunteers for the study, recruitment of medical centers, and ordering medicines (including organization of transport)
- Project implementation—basic phase, treatment, ongoing monitoring of progress and compliance with the protocol, as well as security monitoring (adverse events),
- Closing the project—the last visit, carrying out the procedure of organizing all obtained data and information, performing statistical analyzes, preparing the final report, and writing scientific publications.

7 Conclusion

The chapter presents the key elements of the model approach to managing healthcare projects, creation of a basis for deepening scientific inquiries regarding the issues of improving the efficiency of their management, formulation of proposition of clinical trial project management model, as well as building of foundations for the development of research on critical success factors of healthcare projects. It also shows the results of a pilot study, the object of which is to identify the elements shaping the

project management model in the healthcare sector on the example of clinical trial projects (including noncommercial clinical trials). Project management conditions in the healthcare sector have also been identified. To some extent, selected factors of the success and failure of healthcare projects were determined. Participants of the study were people professionally associated with running projects in the healthcare sector, and the group of researched projects was narrowed to projects of clinical (including noncommercial) nature.

The obtained results are promising and can be used to improve the efficiency and effectiveness of project management in the field of health (and medical research), which can bring significant benefits in terms of both management and the results of scientific research carried out in medical projects. Study on the presented clinical trial project management model will be continued. It is anticipated that the scope of the future work will be limited to the project planning stage. This is an important and relatively less researched study area.

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The Compatibility of Outside-In and Inside-Out Strategic Approaches



Slobodan Adžić

Abstract The aim of this chapter is to reveal the compatibility of the most important strategic approaches. Moreover, through a critical discussion of the key literature relating to the issue and a business case analysis, the author will suggest a preferred flow of strategic analysis in a business case, based on the compatibility of strategic approaches. The epistemological stance of the author is critical realism. The two most important strategic approaches in strategic management are the outside-in and inside-out. The author argues that there is enough evidence as theoretical findings and practical implications that the outside-in and inside-out approach in strategy could be compatible. Among the evidence, the central point is dedicated to the business case of HIP Petrohemija, as a fine example of why the approaches are compatible, as well as the proper flow of strategic analysis. The chapter suggests that the flow of strategic analysis in strategic marketing should start with the outside-in environmental analysis, in order to understand the opportunities and boundaries of the market and discover a fit on market, and then it should continue with the inside-out internal audit, in order to find out the inner capabilities and the core competence.

Keywords Strategic Approaches · Outside-In Approach · Inside-Out Approach · Strategic Management

1 Introduction

This chapter tends to overcome a noticed problem in the strategic management literature. There is a manner among some academics to pursue just a single strategic approach, the outside-in or the inside-out. That approach is flawed in theory. A theory should be not exclusive. Especially in practice a manager or a consultant should find the solution to the problem and that approach would be deficient if it is

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based on one approach or theory only. My motivation is to give the answer in which way the outside-in and the inside-out approaches should be merged giving a business case HIP Petrohemija. Ontology of my research is that the competitions exist on every market and that two main approaches existed in explaining it: outside-in and inside-out. Those phenomena I observe as a given. Epistemology of my research is critical realism, in order to discover and critically examine the link between the two main approaches. My research strategy is a qualitative one and the tools I use are the literature review and case study analysis. Critical realist always supports an argument (Adžić 2012). I argue that it is possible to find the link and to establish the modality how to use both, on appearance opposite, outside-in and inside-out approaches in creating the winning competitive strategy.

In this chapter, after defining what strategy is, I shall present two main strategic approaches in strategic management and my view on their compatibility in strategy practice. The main theories of the outside-in approach are the Five Forces and Value Chain. After the elaboration of the other outside-in researches, the next section is devoted to the classic examples of business cases that support the outside-in approach: QWERTY typewriters and Levitt's influential article on railroads. The advantages and shortcomings of the outside-in approach are also part of this section. In the next section, I am presenting the inside-out approach and the main and supporting inside-out theories: core competence, strategic intent, strategy as stretch and leverage, distinctive capabilities, and Blue Ocean strategy. The next section is devoted to the classic inside-out business case: Matsushita Home Bakery. The pros and cons of this approach are also presented, as well as the survey with a conclusion that cost was the biggest driver among enterprises. Finally, I shall present the theories that support the usage of both approaches in practice, as well as the successful business cases, with an emphasis on HIP Petrohemija. This case is proof that a winning strategy would be impossible to generate without the application of both strategic approaches: outside-in and inside-out. I argue that focusing on only one of the approaches limits the understanding of managers. I am concluding that the flow of the strategic management analysis should start with the outside-in environmental analysis, and then it should continue with the inside-out internal audit.

The aim of this chapter is to reveal the compatibility of the most important strategic approaches. There are a number of scholars who are choosing one of them. This chapter differs as it is not pointing in one direction. Moreover, I synthesized the literature of the scholars who have the same view as I have: that both approaches are compatible. Finally, the main contribution of this work is not only a synthesis of theory but also a presentation of a business case with proof of how both inside-out and outside-in approaches could be merged in the strategic analysis successfully. After the introduction, in the first chapter, the theory of strategic management is given. In the next two chapters, the critical discussion of the key literature relating to the strategic approaches is presented. The outside-in approach is elaborated first, as an older theory, following with a newer inside-out approach. The chapter in which the evidence of the compatibility of strategic approaches has the purpose to give not just the theoretical explanation why both

of the approaches are not competitive to each other, but through a business case analysis, I will suggest a preferred flow of strategic analysis, based on the compatibility of strategic approaches. In the conclusion it is pointed out that the strategic analysis should start with the outside-in approach and it should continue with inside-out approach.

2 On Strategy and Strategic Approaches

The strategy is important to businesses. However, there is no consensus about its definitions, nor its processes (Mishra et al. 2015). It is necessary to emphasize that strategy is a borrowed word from military theory. The most distinguished authors who gave the immeasurable scientific contribution to the development of business economics strategy are Porter (1987, 1996, 2004a, b) from one side and Hamel and Prahalad (1996) from another one. In his main works, Porter (1987, 1996, 2004a, b) pleads for the so-called outside-in approach. That approach emphasizes the strategic environmental analysis framework, in order to help businesses to understand how to successfully fit in the present competitive market. Hamel and Prahalad (1996) plead for the so-called inside-out approach. That approach emphasizes the resource frame audit, in order to help businesses discover the distinctive and/or unique inner capabilities and how to compete successfully. Porter (1987) claims that competition occurs at the SBU level only because diversified companies do not compete; only their business units do. Hamel and Prahalad (1996) see the core competence on the corporate, not SBU level.

Porter (1987, 1996, 2004a, b) and Hamel and Prahalad (1996) are strong advocates of their approach, opposed to the contrary approach. I am debating that they are complementary and I shall argue that both approaches are useful and that businesses should use them both in a proper manner for competitive success. The business strategy of every single business will be useless if the company does not adapt to the present market situation, and if the company is not using their distinctive capabilities as a source of competitive advantage.

A sound strategy should match strengths and weaknesses, as well as opportunities and threats (Sajfert et al. 2012). This simple truth is often frustrated by the fact that a distinctive resource base and the activity of a firm are going in totally different directions compared with the development of current markets. Adaptation to the environment is a vital requirement for the success of a firm. However, building a new area of competence takes a considerable amount of time, effort, and money, and is associated with many risks, to shift the resource base and reconfigure the activity system, in order to build the successful competitive advantage. Management literature comes with strongly different views and many incompatible prescriptions. The main questions dividing the managers are: “Who should be fitted to whom?”—should an organization attempt to adapt itself to its environment or should it attempt to adapt the environment to itself, to its resources? One side of the spectrum is that market opportunity should be leading; at the other end that competition revolves

around rival resource bases. No consensus has yet developed within the field of strategic management on how to balance markets and resources (De Wit and Meyer 2004).

3 Outside-In Approach

Leading author of the outside-in approach is Porter (1987, 1996, 2004a, b). For him, the environment or the industry comes foremost. Porter (Porter 2004b) developed the Five Competitive Forces model and the Value Chain model (Porter 2004a). A value chain is a tool that helps to understand the linkages and interactions of a firm's activities and processes in a given competitive environment. The outside-in strategic approach emphasizes strategic environmental analysis and positioning. The main outcome should be the fit in the competitive arena (Adžić et al. 2013b). Since long-lasting profitability is not easy to gain, finding the fit is the most important strategic activity.

Thompson and Strickland (1992) vouch for the usefulness of the Five Forces model. Day (1984) argues that the outside-in approach is in accordance with the marketing concept since happy customers as one of the environment forces are the cornerstone of that concept. Also, Prahalad and Ramaswamy (2000) claimed that customer experience is critical for business success. Among corporations, satisfied customers are becoming not just the assets but also the source of competence. The evidence that market share, fit, and profitability are strongly correlated is given in the PIMS quantitative research of 3000 companies (Buzzell and Gale 1987). The most important finding is the strong connection between market share and profitability. The final advice from the PIMS research is that market leadership should be the final strategic goal of a company.

As the main flaw of the Five Forces, Hill and Jones (2001) recognized a missing force, the complementors. In economics, substitutes and complementors are related to each other in the market demand analysis. Outside-in analysis (Hill and Jones 2001) presents a static picture of the market. Porter's approach does not answer the question of why different firms perform differently in the same competitive environment (Kay 2003). Analysis cannot produce synthesis and the outside-in view of the strategy has a narrow focus (Mintzberg et al. 1998), because those strategists have in mind a generic position but companies are not competing to be the same, but different.

There are a number of articles where someone could find the analysis based on the outside-in models. Some of them are the analysis of the baking industry (Siaw and Yu 2004), the analysis of the retail industry (Dommissie and Oosthuizen 2004), the analysis of the electronic industry (Samuel and Venkataraman 2004), as well as the analysis of the Internet industry (Mo Koo et al. 2004). Levitt (1960) analyzed the strategy failure of railroads in the USA. Railroads are a model of how the absence of creative ability to see an opportunity within the market can crush the competitive position of the firm or all businesses. In an article about the QWERTY keyboard

layout, David (1985) argued on the importance of the environmental forces in strategic management. It offers an outline of how the primary development can construct a persevering competitive advantage. Although the outside-in approach puts more emphasis on the environment of the company, rather than on the company itself and the company's resources, successful companies seek to discover the best position on the market in order to compete all its rivals and probably that is the reason this approach is still so popular and successful today, and why it would be in the future, as well (Adžić et al. 2013a).

4 Inside-Out Approach

Hamel and Prahalad (1996) are the staunch supporters of the inside-out approach. Core competence, stretch and leverage, and intent are their much-known theories in every business school. The most important one, the core competence, is a cornerstone of a winning competitive strategy. That is a persistent pursuit of new skills and technologies to achieve strategic goals. Therefore, the resources of the company have a pivotal role, especially difficult to imitate ones (Momčilović et al. 2013). The approach that puts the assets of the company before the environment of the company, which requires that the company ought to adjust the environment to itself, is the inside-out approach.

Effective strategists should know what an organization does best and the foundation of it is the core competence (Thompson and Strickland 1992). Competence is at the core of any fruitful activity. The inside-out approach can be an incredible asset in contemplating procedures. Indeed, inside the dynamic environment companies can accomplish persevering competitive advantage if they can construct obstructions to imitation (Hill and Jones 2001). A firm should build distinctive capabilities (Kay 1995). Those capabilities are never made as to the consequence of a decision. The most significant single component in the advancement of competitive advantage is the manner in which to coordinate activities to capabilities, in order to stick to the core. Capabilities, competences, skills, strengths, intangible assets, and organizational knowledge are utilized by different authors as the comparative terms (Campbell and Sommers Luchs 1997). Common in these terms is that they characterize those unique capabilities, knowledge, and behavior that can be the wellspring of an organization's advantage. Stalk et al. (1992) contend that companies ought to not construct static market share. Organizations ought to create capabilities that enable the organization to move rapidly in and out. Any firm would profit by a precise and methodological examination of its assets, abilities, and skills (Javidan 1998). The Blue Ocean strategy (Chan Kim and Mauborgne 2004) is the most acclaimed inside-out school. The fundamental thought of Blue Ocean strategy is that the Blue Ocean is where demand is made, inverse to the Red Ocean where companies compete for a greater share of the current demand.

Simply being diverse is not a preferred strategic position itself and therefore the inside-out approach can demoralize vital change (Mintzberg et al. 1998). Likewise, it

is hazardous to liken the authoritative uniqueness with a vital favorable position. The capabilities are in every case best made inside the system of enormous firms getting a charge out of inner economies of scale and scope. Low- and medium-innovation firms, enterprises, and national economies are implanted in the system of assets claimed by others (Foss and Robertson 2000). The core of the strategy for Porter (1987) is positioning. He claims that positioning is dismissed as unreasonably static for the present powerful markets and advancements since adversaries can rapidly duplicate any market position. Those convictions are perilous misleading statements and that those misleading statements are driving progressively more organizations down the way of commonly damaging competition. For Porter (1996), the procedure is the formation of one of a kind and important position, deciding to perform unexpected exercises in comparison to adversaries or deciding to perform exercises in an unexpected way. The strategy ought not to be mistaken for operational viability, indeed despite the fact that both are essential for prevalent execution.

Lindgren et al. (2004) research contended that core competence advancement is very live inside numerous companies all through the world, but still, a core competences statement among organizations is very elusive (Campbell and Sommers Luchs 1997). Outside-in techniques could be found in numerous papers and research. Unique capabilities in the Citibank and the Shana Corp. (Miller et al. 2002) and the core competence built on the cost from the Hewitt survey (Clark 2004) are just a few of them. Matsushita Home Bakery is a genuine case of utilizing competence in building competitive advantage (Campbell and Sommers Luchs 1997). This case illustrates the significance of an organization's capacity to distinguish the sort of information required by the changing competitive environment and to improve the empowering conditions ceaselessly. The competence is at the core of any effective movement, and likely that is the reason why this approach is still so prevalent and fruitful nowadays, and why it would be within the future, as well (Momčilović et al. 2013).

5 Evidence of the Compatibility of Strategic Approaches

Within the single-business key examination, the two greatest situational contemplations are industry and competitive conditions, and the company's inside circumstances and resources (Thompson and Strickland 1992). The environmental school exemplified by Porter developed frameworks that helped managers to understand external opportunities and threats. The next step is to determine if the business possesses the necessary skills to implement the strategy, or if it can acquire those skills at a reasonable cost (Campbell and Sommers Luchs 1997). A successful strategy must be consistent with the characteristic of a firm's external environment, as well as the internal environment—firm's goals and values, resources and capabilities, and structure and systems (Grant 2005).

In a case that illustrates the bankruptcy of Starter Corporation, Sack and Nadim (2002) conclude that Porter's Five Forces model continues to be the necessary

starting point for analysis and research in strategic management “but no single model is sufficient to explain all facets.” The Amex case is a good example of using the framework which includes all approaches: Porter, core competences, and dynamic capabilities. After evaluation, Wonglimpiyarat (2004) concludes that Porter answers the question of why and the other two approaches to the question of how. Furthermore, neither approach can predict short- or long-term success. Yong Kim and Oh (2004) concluded that focusing on only one of the approaches limits the understanding of managers. Using Southwest Airlines Co. and Canon Inc. as the primary illustrations, Leavy (2003) concludes that for many firms the bifocal vision—inside-out and outside-in—will lead to a better result. By analyzing the firm situation from both points of view, managers can come into valuable insight.

A focus on internal resources came after an obsession with external competition—obviously, what is necessary is a sense of balance. “Should the firm really be urged to swing to one side or the other?” (Mintzberg et al. 1998). One-size-fits-all approach is not the desired approach (Homkes and Sull 2016). What is imperative is that companies discover their fit, or one of a kind execution approach, which implies understanding what blend of the arrangement, coordination, and adjustment is most basic to their strategies. Understanding the technique approaches might be basic. Expanding the effect of the corporate technique work has clear suggestions—superior choices are made, critical activities are more likely to succeed, and the technique work is way better able to meet the organization’s special requires (Brunsman et al. 2011). Relational strategy content (Zakrzewska-Bielawska 2019) and similar new concepts would not arise if academics have advocated just one strategic approach. Strategic analysis (Adžić 2005) should start with an environmental audit. An environmental audit will give information about the present situation. But just understanding the present is not enough. Then analysis should continue with an internal audit, to obtain the information on a cornerstone for building the core competence.

I particularly emphasize a case study (Adžić and Očić 2013) of company HIP Petrohemija, Pancevo, Serbia, with the aim of generating feasible strategies for the technological and economic development of this company. Petrohemija was built as a strategic development phase of an integrated complex of the Pancevo Oil Refinery and Chemical Industry Pancevo, but their full integration has never occurred. Broken links with the Romanian petrochemical plant Soventul caused the cracking of virgin naphtha in Petrohemija at 80% capacity, and NATO bombing brought down to no more than 60% capacity. This analysis (Adžić and Očić 2013) started with the SWOT analysis and the TOWS matrix. This technique produced two practical methodologies, which were exposed to further tests. The three portfolio models: Boston Consulting Group (BCG) matrix, General Electric (GE) matrix, and Nine specimen standardized strategies clarified the current position of HIP Petrohemija, the need that HIP Petrohemija deliver more finalized items, i.e., polymers, and it requires that HIP Petrohemija diminish misfortunes, but did not offer a reply to the address which procedure is the foremost appropriate one for the company. This dilemma was solved with the help of Ansoff matrix, which showed us that for HIP Petrohemija will be more profitable to merge with, in its value chain, to the

distributor, not with to the supplier. Porter's models Five Forces and Value Chain analysis further affirmed the upside of the technique of fixing associations with a merchant in inverse to the procedure of fixing associations with providers of crude materials. The last model used in this paper was the Competitors Differentiation Iceberg model, which was used to generate the answer for the question of what is the core competence of HIP Petrohemija. The authors have found that core competence is the high quality of polymers of the company.

Adžić and Očić (2013) featured that the outcomes could not be produced without the assistance of both outside-in and inside-out thinking. Porter's contemporary models both affirmed the upside of the system of associating with a wholesaler in connection to the association with the provider of crude materials. The models indicated the high quality of polymers as the core competence of HIP Petrohemija competence and the highest quality should be strategic intent of the company, since that quality will most likely make success on the market for HIP Petrohemija. Adžić and Očić (2013) inferred that a reconciliation with the merchant for HIP Petrohemija gives collaboration, which is the best strategy, since HIP Petrohemija's business sectors could be left to the wholesaler, which is a lot more grounded in promoting and selling, while then again, HIP Petrohemija can concentrate on the generation and arrangement of long-haul nature of its polymers.

6 Conclusion

It is clear from earlier exposures that using one theory only has the consequence of the result not giving the complete view of all problems. The outside-in approach can give a good framework to a complete analysis, but after framing the environment it is impossible to rely much on outside-in. The inside-out approach can point perfectly on resources and competences suitable for the building of competitive advantage, but that approach is failing of the appliance of that advantage because it is not clear if the building of that competitive advantage makes a success on the market.

It is important to understand the flow of strategic analysis. It should start with an environmental audit. An environmental audit will give us information about the present situation, what is a market situation, and what trends you can expect. But just understanding the present is not enough. The understanding of the present situation is the starting point for building new competences. Then it should continue with an internal audit. An internal audit will give us the information which is the cornerstone for building the right core competence. Building competence demands time; building competence is preparation for competing for the future. In modern turbulent times, the future can happen very fast. The outside-in approach will give the direction where to aim and the inside-out approach will give the ammunition for aiming. The strategy combines those two in a powerful weapon. What you need to do is just to pull the trigger.

The environment and the company's internal situation are the two most important strategic issues for any company. I strongly support the view that *where* should be

answered before *how*. This is a logical path of human thinking; deductive reasoning always was *par excellence* reasoning in social sciences. However, an important element in that reasoning is also a status of business—is the business in a regular or changing period? Regular times are more external-centered and changing times more internal-centered. A very important issue is not to forget feedback; although the requests of logic demand thinking from outside-in to inside-out, those two activities are to some extent parallel too. The results—the strategy which leads to victory—should rely on both in-depth analyzed approaches.

The business theory has borrowed the term strategy from the military world and the military world is considering strategy as the most important tool in achieving victory. If the outside-in view is presenting direction and inside-out ammunition, the strategy is a powerful weapon. Using both approaches should build a strategy that will lead to a result. Therefore, I conclude that it is necessary to use both strategy approaches, and it should start with outside-in and continue with inside-out in order to create a winning strategy. That is the general conclusion and recommendation that follow from this work.

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Conceptualizing the Assimilation and Risk of Online Social Media in Saudi Arabia: An Empirical Study



Adel Alaraifi

Abstract This chapter examines the assimilation and risk of online social media (OSM) in Saudi Arabia. It seeks to identify the nomological set of antecedents that can explain the variation in the assimilation of OSM and the impact of OSM on the Saudi community. Using the diffusion of innovation theory, the institutional theory, and qualitative data of six case studies (experts of social, media, and regulatory institutions), this chapter proposes a theoretical framework that can be used to explain the factors that could influence the assimilation of OSM and its impact on the Saudi community. A series of theoretical propositions are proposed. The results indicate that several individual, technological, and institutional factors were identified as antecedents for the successful assimilation of OSM. They include personal innovativeness, risk appetite, relative advantages, compatibility, complexity, perceived uncertainty, normative pressure, coercive pressure, and mimetic pressure. The results also show that the assimilation of OSM is likely to be associated with risks, including impact on personality attributes, depression level, productivity level, social values, family structure, public transparency, and religious information.

Keywords Online social media · Social network sites · Technology assimilation · Media risk · Saudi Arabia

1 Introduction

The aim of this study was to explore and to identify the factors that can influence the assimilation of online social media (OSM) within the Saudi context. Another aim is to explore and to identify the risks associated with the extensive use of OSM. Social network sites and new media can be defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that

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allow the creation and exchange of User Generated Content” (Kaplan and Haenlein 2010, p. 61). This includes but is not restricted to collaborative projects (such as Wikipedia), personal blogs, content communities (such as YouTube), social networking sites (such as Twitter, Facebook, and LinkedIn), photo and video sharing apps (such as Instagram and Snapchat), group messaging apps (such as WhatsApp), and virtual gaming and social worlds (such as World of Warcraft and Second Life). For the purpose of this study, the term “online social media (OSM)” is used to refer to social network sites and new media.

Technological advances have allowed OSM to dominate and to take over the traditional means of media, such as newspapers and television. Unlike traditional media, OSM provides two-way communication, which allows people to share their knowledge and to publish their own content on the World Wide Web without restrictions and at no additional cost. To understand this phenomenon, several researchers have studied the factors that could drive individuals and organizations to adopt and to use OSM (Young 2017; Curras-Perez et al. 2014; Nah and Saxton 2013). Despite these efforts and due to the rapid growth of OSM use, there is a need for additional empirical studies to investigate the assimilation (post-adoption stage) (Bharati et al. 2014) of this technology. Studying the assimilation of an innovation helps users leverage the various advantages and features of technologies in their daily routines and activities (Damanpour 1991; Armstrong and Sambamurthy 1999). As such, assimilation reflects how and to what extent a technology is being integrated and utilized.

On the other hand, despite the fact that OSM has revolutionized the way people communicate, it has several drawbacks and risks that are worth consideration (Hussein 2016; Munnukka and Järvi 2014; Saeri et al. 2014; Ji et al. 2010; Kaplan and Haenlein 2010; Livingstone 2008). For example, information is being transferred and shared by several people from different countries who belong to different cultures and have different thoughts and attributes. As information is being shared and transferred without classifications, verifications, or filtering or censorship of data, there is high potential that it could bring social or cultural risks in the form of alterations of an individual’s and society’s values.

Saudi Arabia has recorded a dramatic increase in the number of users of OSM in recent years. This infers that Saudi society is likely to be impacted by this revolution. Nevertheless, there is a dearth of research on OSM to understand this phenomenon within the Saudi context. Second, despite the high popularity of OSM among users in Saudi Arabia and worldwide, there is still a need for more in-depth empirical investigations to identify the determinants of OSM use and to explore its short-term and long-term consequences from different risk dimensions.

For this purpose, the aim of the study was to develop a conceptual model that will allow for answering the following research questions: (1) What are the factors that explain the variations in the assimilation of OSM among the Saudi community? (2) What are the risks associated with OSM assimilation ?

2 Literature Review

OSM platforms have revolutionized the way people communicate (Young 2017; Parveen 2012; Mukherjee 2010). Currently, breaking news, local updates, and even daily activities of regular people spread around the world in the blink of an eye. Since the introduction of OSM platforms, they have attracted millions of users around the world, many of which have assimilated these technologies into their daily practices (Ellison 2007). Reports indicate that Facebook recorded more than one billion users, while its major competitor, Twitter, with over 500 million active users, has become a major hub of online activities (Zuckerberg 2012; Dugan 2012). Inarguably, youth are usually most users and are considered to be early and rapid adopters of OSM worldwide (Krueger 2002). As such, it is anticipated that this group can drive the success of this technology as well as might be driven by its impact. The literature review indicated that the research trend on OSM can be categorized into three broad streams. A sample review of the literature is depicted in Table 1. While the first stream of research focuses on the design, development, and evolution aspects (e.g., Krishnan et al. 2013; Burmeister 2009), the second is concerned with adoption and usage matters (e.g., Young 2017; Curras-Perez et al. 2014; Sun and Wang 2012; Kate et al. 2010). The third stream concerns the impact and effects of OSM (e.g., Hussein 2016; Munnukka and Järvi 2014; Grassman and Case 2009; Kreps and Pearson 2009). This research contributes to the second and third streams. A sample review of the literature revealed that OSM has received growing interest by researchers in studying the antecedents affecting the use of OSM technology and its multidimensional aspects from both individual and organizational perspectives. Table 1 provides a brief summary of the literature on OSM.

By reviewing the literature, several observations can be made. First, among the various OSM platforms, Facebook was studied extensively, followed by Twitter, which has received less focus. Nevertheless, the impacts of other OSM platforms that have gained high popularity among users include YouTube, Snapchat, Online Gaming, LinkedIn, etc., and they still require more in-depth investigations. Second, the assimilation of OSM has not been studied sufficiently. Most of the literature focuses on the adoption stage (e.g., Young 2017; Curras-Perez et al. 2014; Nah and Saxton 2013), whereas only few researchers have examined the assimilation of OSM (e.g., Bharati et al. 2014). While innovation adoption refers to the initial phase of a system's success by using an innovation (Damanpour 1991; Agarwal et al. 1997), innovation assimilation refers to technology absorption into the daily routines of an individual. Third, studies are highly limited on the use and impact of OSM within the Saudi context (e.g., Hussein 2016; Alqahtani 2016). Saudi Arabia, like many other countries, has unique cultural and religious attributes. This implies that more empirical research is required to capture the influence of the unique attributes on OSM assimilation as well as the impact on these attributes as a result of assimilating OSM.

Table 1 A sample review of literature

Authors	Objectives	OSM				
		Twitter	Facebook	YouTube	SnapChat	Others
Ahmad et al. (2019)	Exploring factors that influenced social media adoption by SMEs and its impact on performance in UAE.	X	X	X		
Zolkepli and Kamarulzaman (2015)	Observe the role of media needs and innovation characteristics in social media adoption process	X				
Dhir et al. (2018)	Determinants of user intention to use a specific social media feature		X			
Huang and Su (2018)	Factors motivating young adults for Instagram use					X
Hussein (2016)	The negative effect of social network on the social values				X	
Young (2017)	The adoption and utilization of social media in nonprofit human service organizations	X	X			X
Westerman et al. (2016)	Exploring the potential sources of students' attitudes toward social media	X	X			
Alqahtani (2016)	Effects of social networking on higher education in Saudi Arabia	X	X			
Parveen (2012)	The impact of social media on information accessibility	X	X			
Atkin et al. (2015)	Explores the diffusion theory in the new media environment					X
Park et al. (2015)	Comparing Twitter and YouTube networks in information diffusion	X		X		

(continued)

Table 1 (continued)

Authors	Objectives	OSM				
		Twitter	Facebook	YouTube	SnapChat	Others
Vodanovich et al. (2015)	Study the impact of social networking sites usage	X	X	X		
Bharati et al. (2014)	Social media assimilation and roles of absorptive capacity and institutional pressures					X

Source: Compiled by author

3 Theoretical Background

The literature suggests that the assimilation and the risks of OSM have not been theorized adequately by theory-driven studies, and thus, it was important to borrow from arch theories to guide the study. In the absence of a theory-driven framework in a technology innovation domain, researchers are encouraged to borrow from and combine multiple theoretical streams into an integrated framework rather than to rely on a single theory (Fichman 2001). This allows for a better explanation and understanding for studying the innovation of technology in a complex environment. Thus, a conceptual framework that combines multiple theoretical streams derived from classical theories of technology innovation as a result of six cases studies is proposed. The literature review showed that most researchers have borrowed from the diffusion of innovation theory (e.g., Young 2017; Park et al. 2015; Constantinos and Coursaris 2010), the institutional theory (e.g., Tajudeen et al. 2017; Bharati et al. 2014; Nah and Saxton 2013; Parveen 2012), and the four facets of assimilation (Masseti and Zmud 1996) to develop their research models for examining the complex attributes of innovation assimilation.

3.1 OSM Assimilation

The literature also suggests that there is no ground theory used to explain the assimilation phase; however, most researchers have developed models by drawing from the four facets of innovation assimilation developed by Massetti and Zmud (1996). They have defined the four facets as volume of innovation, diversity of application, breadth of usage, and depth of use, and hence they were adopted for this study. For the purpose of this study, volume is represented by the total number of OSM applications used by individual; diversity is represented by the number of functional areas where OSM is being used; breadth refers to the extent to which OSM features are used in performing/accomplishing each functional area identified

above; and depth of OSM refers to the extent to which OSM has been integrated into the user's daily routine or activities.

3.1.1 The Diffusion of Innovation (DOI)

The diffusion of innovation (DOI) theory is one of the most cited theories used by several researchers to study technology innovation use (Rogers 1983). According to DOI theory, the attributes of individuals, technology, and organizations can influence the phases of innovation adoption and assimilation (M Rogers 1983). Therefore, DOI identifies three groups of antecedents: individual, technological, and organizational. These factors can either encourage or discourage the innovation use. Technological factors usually refer to relative advantages, complexity, compatibility, trialability, and observability. Individual factors refer to motivation, personality traits, and ability. Organizational factors include firm size, centralization, complexity, slack, formalization, and interconnectedness.

The literature reveals that DOI has sufficient empirical support in the information systems (IS) research discipline to study the use of technology (Fichman and Kemerer 1997; Chwelos et al. 2001) and the use of OSM (e.g., Young 2017; Park et al. 2015; Constantinos and Coursaris 2010). DOI appears to be a robust theory to inform technology assimilation. Nevertheless, it has received criticism due to its limitation in explaining emerging technologies (Kouki et al. 2010). Therefore, researchers tend to redefine the relevant construct for their studies building on the concept of DOI. For the purpose of this study, technology attributes refer to relative advantages, compatibility, and complexity.

Relative advantage refers to the unique advantages of an innovation, such as its capability to perform the desired tasks and the effectiveness of its functionality (Rogers 1983). Previous literature on IS research demonstrates that relative advantage can encourage technology assimilation (e.g., Hsu et al. 2006; Wu and Chuang 2009). OSM provides several advantages for users as it provides reach, sociability, speed, time efficiency, and two-way communication, which allow people to share their knowledge and to publish their own content without restrictions and at no additional cost. Compatibility assumes that technology innovation is consistent and compatible with the existing norms, values, experiences, and requirements of the innovation user (Rogers 1983). It informs the degree to which alignment is perceived between the technology innovation and the values, culture, and work practices of an individual or organization (Jones and Beatty 1998). Therefore, OSM users need to perceive that OSM is compatible with their existing values, norms, experiences, and requirements. Complexity refers to the conditions under which an innovation is difficult to be understood by an individual or organization (Rogers 1983). The complexity of new OSM apps could inhibit the advanced use of OSM beyond basic needs. All users have unique personalities and attributes that may make it more complex for them to integrate OSM into their various habits, especially when platforms continue to update and to change their features and privacy policies.

3.1.2 Institutional Theory

Institutional theory assumes that institutions work as driving forces upon individuals and organizations by creating various levels of pressure, including social pressures, restrictions, and setting boundaries for what is accepted and what is not (Meyer and Rowan 1977, Zucker 1987; DiMaggio and Powell 1983). As per this theory, social and cultural factors and concerns for legitimacy also affect institutional decisions along with rational efficiency goals. Institutions are driven by the cultures and structures of institutions (Dash et al. 2014). This influence can be described as normative, coercive, and mimetic pressures. Institutional theory claims that the institutional environment plays a vital role in shaping an institution's structure and actions (Meyer 2008).

DiMaggio and Powell (1983) mentioned that per this theory, firms become more similar due to isomorphic pressures and pressures for legitimacy. This results in several firms becoming homologous in one field over a period. Previous researchers have used this theory to study OSM (e.g., Tajudeen et al. 2017; Bharati et al. 2014; Nah and Saxton 2013; Parveen 2012). The institutional forces typically refer to three types of institutional isomorphism: normative, coercive, and mimetic pressures.

Normative pressure can influence the assimilation of IS (Cheng et al. 2006). Normative pressure results from society, groups, professionalization, or industries (DiMaggio and Powell 1983). Individuals or organizations can be affected by their peers as they believe that they need to engage in a behavior because their peers expect them to do so. DiMaggio and Powell (1983) asserted that normative pressure that results from society or individuals can influence the decisions of individuals (either directly or indirectly) and can force them beyond their preferences to choose a strategy or system.

Coercive pressure results from dominant stakeholders, such as government departments, regulatory agencies, educational institutions, or industry associations (DiMaggio and Powell (1983)). Coercive pressure was found to influence the assimilation of innovations directly (Liang et al. 2007; Kouki et al. 2010). Thus, assuming contemporary circumstances under which it becomes compelling for users to engage in the deeper extent of OSM usage, this is likely to be facilitated. Mimetic pressure occurs when individuals or organizations model themselves based on other individuals or organizations and evolve into a blind-uncertainty (or imitation) strategy. DiMaggio and Powell (1983) asserted that mimetic pressure can affect the decisions of users (either directly or indirectly) and can push them to choose an innovation. Due to the nature of the social structure in Saudi Arabia, users might be inclined to copy the behavior of others to maintain the pace of modernity.

3.2 *Linking OSM Assimilation Level with OSM Risk*

Risks and uncertainty perceived by individuals and organizations have been studied mostly in the context of customer buying process and experience. This study posits that OSM assimilation would be associated with some sort of OSM risk that could affect individuals and society. The concept of risk typically has three dimensions: potential loss (likelihood), significance of the loss (consequences), and uncertainty about loss (Yates and Stone 1992). Several researchers have developed different indicators to measure the risk of usage through various dimensions including personal, physical, technical, psychological, financial, professional, time loss, performance, delivery, service, and relationship (Cocosila and Turel 2016; Munnukka and Järvi 2014; Stone and Grønhaug 1993). Although this study builds on previous studies to develop the indicators for measuring the impact and risk of OSM, it also attempts to develop customized indicators by drawing on the analysis of the empirical case study through interviews with experts. The risk and impact would extend to different dimensions including personality attribute, depression level, productivity level, and social structure. Therefore, the study conceptualizes OSM assimilation and risk framework as depicted in Fig. 1.

4 Research Method

This study identifies determinants of OSM assimilation as well as its impact on Saudi society. The existing literature suggests that there is a lack of previous empirical research in this area of investigation. Thus, a researcher would need to select an appropriate research approach to understand the phenomenon and then generate the research propositions (Myers 2009). Due to the lack of previous research on this particular phenomenon and the lack of a theory-driven model that can inform the phenomenon under investigation, a qualitative approach was identified (e.g., interviews, cases studies) as the most suitable method to collect empirical evidence and to obtain an adequate understanding of the areas under investigation (Eisenhardt 1989; Myers 2009).

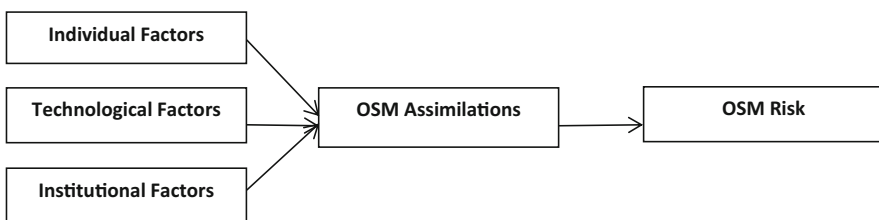


Fig. 1 OSM assimilation and risk framework. (Source: Author's work)

Table 2 A summary description of the case studies profiles

Geographical area	Eastern region			Central region		Western region
	1	2	3	4	5	6
Expert/case code						
Type of institution	Youth development	Education	Media agency	Youth development	Education	Media agency
Years of experience	32	29	12	23	25	31
Gender	Male	Female	Male	Male	Male	Female

Source: Author’s work

A case study approach is a common method used to answer research questions, including “what,” “why,” and “how,” making an original contribution to knowledge (Myers 2009). It is also considered a good approach to investigate an emerging phenomenon (Yin 2003), such as OSM assimilation and risks in Saudi Arabia. In the early stage of investigating a phenomenon, the use of case studies based on a few interviews with key informants is commonly used in IS research and is considered a well-accepted approach (Myers 2009). Therefore, it was deemed that six cases studies were adequate for the purpose of this study.

To this end, a quantitative approach was adopted for this exploratory study (Mingers 2003). The case studies were conducted through semi-structured interviews with experts from social, media, and regulatory institutions. Participants were recruited through networking events, LinkedIn profiles, and Snowballing techniques. A total of six experts from different institutions were interviewed, representing three of the largest geographical areas of Saudi Arabia: Eastern, Central, and Western Provinces. This allowed for capturing any potential differences in sub-local cultural dimensions. All participants are well known and were over the age of 40. Conducting pilot studies using a small number of participants is an acceptable practice within the IS and management research domain (Myers 2009; Yin 2003).

The data were collected based on face-to-face interviews at the most convenient location for the experts. To enhance the validity of participants’ feedback, the initial findings and highlights of each interview were verified and confirmed by participants twice: one at the end of each session and one after the completion of the content analysis. Furthermore, structured interview guides were used to ensure the consistency and reliability of answers. The interviews were transcribed, and the data were then analyzed using content analysis techniques and coding. The interviews’ manuscripts were analyzed, and the relevant data were coded. The data were then synthesized to make meaning of the information that can contribute to the domain of knowledge and to the development of the research framework. A summary description of the six institutions is presented in Table 2.

5 Findings and Discussion

The findings of this study help to validate the antecedents identified in the literature as well as to discover new antecedents for the assimilation and risks of OSM. The results indicate that several individual, technological, and institutional factors were confirmed as antecedents for the successful assimilation of OSM. These include personal innovativeness, risk appetite, relative advantages, compatibility, complexity, perceived uncertainty, normative pressure, coercive pressure, and mimetic pressure. A summary of the confirmed factors from the literature and the emerging factors from cases studies is presented in Table 3.

5.1 Antecedents to the Assimilation of OSM

5.1.1 Individual Attributes

From an individual perspective, all experts agreed on the high influence of personal characteristics on the level of OSM usage. For example, personality attributes and willingness to take risks appear to be the attributes identified by most interviewees. Users are the centric mean of the OSM concept, without which OSM will have no value. The more users of OSM there are and the better the functionality, the more the platforms gain value and popularity. This suggests that attributes of individuals can play a vital role in the success of OSM assimilation. Expert 1 commented that “there are no limits for a risk-taking person when it comes to using social media applications.” Expert 4 added that “anonymity of today’s apps encourages users, especially young users, to explore and connect with new people, assuming risks don’t exist.” This infers that the appetite of users for risk is likely to encourage their advanced use of OSM apps.

Table 3 A summary of key findings of antecedents to OSM assimilation

OSM assimilation	Expert’s code					
	1	2	3	4	5	6
<i>Factors confirmed</i>						
Relative advantages	X	X	X	X	X	–
Compatibility	X	–	X	X	X	X
Complexity	–	X	X	X	X	X
Normative pressure	X	X	X	X	X	X
Coercive pressure	X	X	X	X	–	–
Mimetic pressure	X	X	X	X	X	X
<i>New factors emerged</i>						
Personal innovativeness	X	X	X	–	–	X
Risk appetite	X	–	–	X	X	X
Perceived uncertainty	–	X	X	X	X	–

Source: Author’s work

Risk appetite refers to the collective amount and type of risk that a person or an entity is willing to accept/tolerate to pursue/retain to meet their vision, objectives, and goals (Bromiley et al. 2015; Torabi et al. 2016). Risk appetite is directly linked to the risk behaviors of a person (decision maker). The literature provides sufficient evidence that risk behaviors can influence users' decision to use technology innovations at the individual and the organization levels (Laroche et al. 2004; Cheng et al. 2006). Another factor emerged: "When I discovered how my students exploit the features of some OSM, I thought I should have retired." Expert 3 commented on the innovativeness of users to understand the advanced features of OSM and to employ them to serve their daily requirements. Expert 6 highlighted that "I have been observing how Saudis use innovation in the last ten years. Trust me; they always use it for purposes, even when the one who invented them did not think about it." Expert 1 stated that "new generations are born with the existence of advanced technologies... they might not be doing this officially, but through their way of usage innovation, they do reinvent it." This suggests that the innovativeness of users is likely to encourage their assimilation of OSM apps.

Personal innovativeness factors have roots in the DOI theory. Agarwal and Prasad (1998), who proposed personal innovativeness in the domain of information technology (PIIT), defined personal innovativeness as "the willingness of an individual to try out any new information technology." Empirical research on new technology adoption and use by individuals postulates that personal innovativeness can have a direct and an indirect relationship with the level of technology usage (Koivisto et al. 2016; Al-Jabri and Sohail 2012; Jackson et al. 2013). Based on this, the following proposition is developed:

Proposition 1 The characteristics of OSM users, including their personal innovativeness and risk appetite, can facilitate the assimilation of OSM.

5.1.2 Technological Factors

From a technological perspective, thoughts were shared that were in line with the literature. Innovation originates from the gap between human needs and their ability to fulfill them. This means that users rely on the use of OSM to perform and to execute their day-to-day functions and to achieve their expectations. This proposes that the technological attributes of OSM itself can facilitate its assimilation into the daily habits of its users. "The more the value of apps perceived by users, the deeper they will integrate them into their daily habits," said Expert 2. She also added, "but the tendency of use might be affected by several barriers... such as the degree to which users perceive safety, trust, confidentiality, and ease of use." Expert 5 highlighted that "freedom of barriers perceived by young users has been attached to some degree to their lifestyle of freedom and independency" but that "freedom of barriers always has a cost... it is evident that in the cyber world, nothing is assured nor uncertain." Expert 4 asked, "Who would never use social media application nowadays?... if you don't access WhatsApp or snapchat on daily basis, you will be

disconnected from society.” Expert 3 agreed by adding that “simply, these apps just happened to be compatible with the modern lifestyle.” This suggests that the uncertainty of users regarding OSM’s complications is likely to discourage their assimilation of OSM apps.

Technology uncertainty refers to the subjective evaluations made by users regarding the current and future prospects of an innovation (Ravichandran et al. 2005). Uncertainty regarding technology can be traced to the remaining technology attributes of DOI, meaning the trialability and observability of technology, which are both related to the risk of innovations (Fichman and Kemerer 1997). As such, assimilation of OSM can be influenced by perceived uncertainty about the OSM future and evolution, OSM technical compatibility, and OSM security and privacy, which might restrain the volume, diversity, and intensity levels of OSM usage. Based on this, the following proposition is developed:

Proposition 2 While there are relative advantages, compatibility of OSM with users’ lifestyles facilitates the assimilation of OSM, and complexity and perceived uncertainty inhibit the extent of OSM assimilation.

5.1.3 Institutional Factors

One of the most popular OSM features is that it facilitates communication between service providers and users. Online customer service, client feedback, orders and requests, and complaints all have moved partially, if not completely, to OSM. This trend is gradually moving from the private sector to government entities and regulators. Expert 1 commented that “no doubt the idea that all your family members, friends, and colleagues are using these apps is pushing everybody to use them more and more.” Expert 6 added that “it is becoming a must—not a choice anymore.” According to Expert 2, “nowadays, government departments, regulatory bodies, and public and private institutions all have some sort of presence and engagement in social media applications. . . some even use it as an official representation.” Saudi Vision 2030 is one of the main drivers for organizations, especially public ones, to interact with society through OSM. “To talk and communicate effectively with someone, you need to learn their language,” Expert 3 stated. This expert also discussed that regulatory and government departments recognize the important of OSM as an effective communication channel. This would result in an increasing number of institutions communicating through OSM and hence more assimilation of OSM by society. This infers that the pressure from peers, society, and government is likely to push users to advance their usage of OSM apps.

Proposition 3 Normative pressure caused by peers, coercive pressure caused by public and private institutions, and mimetic pressure due to copying friends and family members can facilitate the assimilation of OSM.

5.2 The Risk of OSM Assimilation

The results show that assimilation of OSM is likely to be associated with risks, including impacts on personality attributes, depression levels, productivity levels, social values, family structure, and religious information. A summary confirming the risks identified from the literature and emerging risks from cases studies is presented in Table 4.

One of the potential drawbacks of OSM assimilation is the negative impact on society. Although individuals could be directly affected, individuals are the building blocks of any social structure. Hence, the impact that could affect individuals will directly or indirectly reach the family and social structures. All experts agreed on the existence of some sort of risk caused by OSM. Expert 3 commented, “Indeed, it has already altered the family structure . . . look at any family gathering—in a restaurant, for example. Everybody except a few are chatting on their gadgets.” These changes are gradually receiving implicit acceptance by parents, and no action is undertaken. Expert 6 added, “Even babysitting tasks have been altered. . . nowadays, the easiest approach to keep babies and kids quiet is to allow them to watch clips from YouTube, TikTok, or SnapChat.” She went on to say, “This is alarming! Society and institutions must take this into consideration seriously.” The far-reaching consequences of such phenomena cannot be estimated and have not been studied discreetly by social scientists. Children are being exposed to unrated material that could cause severe damage to their mental health and morality.

Another matter that is closely linked with the attribute of Saudi Arabia involves religious values. Islam is the official religion in Saudi Arabia. To ensure the dissemination of righteous and sound Islamic values, the education system was built to guarantee that Islamic ethics, etiquettes, and rituals are being delivered by specialized and qualified educators. Expert 4 stated, “I already receive daily messages through WhatsApp groups that include thousands of false Islamic ethics and rituals.” He continued, “What makes it worse is that these messages are being broadcasted by educated people, doing it in good faith, and thinking that they are

Table 4 A summary of key findings of OSM assimilation risks

OSM assimilation risks	Expert’s code					
	1	2	3	4	5	6
<i>Risks impact supported</i>						
Impact on personality attribute	X	X	X	X	X	X
Impact on depression	X	X	X	X	X	X
Impact on productivity	X	X	X	X	X	X
Impact on social values	X	X	X	X	X	X
<i>New risks emerged</i>						
Impact on family structure	X	X	X	X	X	X
Impact on religious information	-	X	X	X	X	X
Impact on public transparency	X	-	X	-	X	X

Source: Author’s work

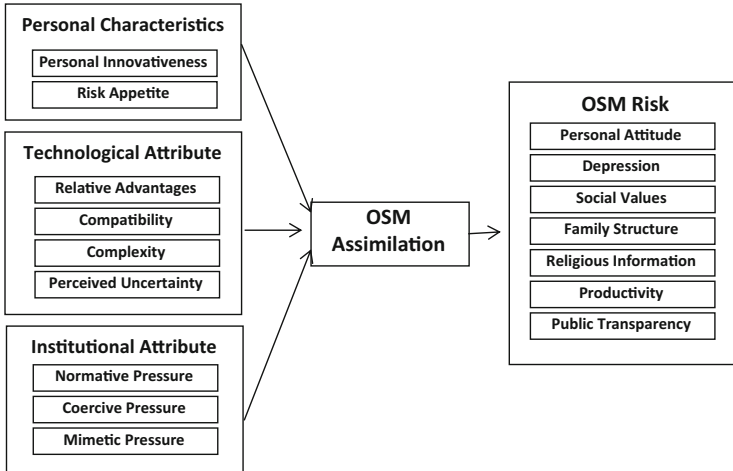


Fig. 2 The conceptual model of OSM assimilation and risk. (Source: Author’s contribution)

spreading good knowledge.” This occurs when people develop their knowledge based on other people’s knowledge who receive information from the Internet published by someone who is not qualified. This suggests that the use of OSM, especially for adolescents, is likely to negatively impact personality attributes, family and social structures, and religious information.

Nevertheless, there are also positive impacts. Expert 1 commented, “Citizens feel more confident and satisfied by easy access to information and feedback from government departments and regulatory bodies’ app accounts.” He added, “We have witnessed an actual example of the Vision 2030 digital transformation of communication between government departments and citizens.”

Proposition 4 Extensive use of OSM can improve the productivity of individuals and the public transparency of agencies, and it can have adverse impacts on personality attributes, depression levels, social values, family structure, and correct religious information.

Therefore, a conceptual model to investigate OSM assimilation and risks is proposed in Fig. 2.

6 Contribution

This study contributes to the knowledge and practice of online social media from different perspectives. First, because there is a lack of empirical research in the area of OSM use and risks in Saudi Arabia, this study contributes to a further understanding of the antecedents of OSM assimilation and risks, hence contributing to the body of knowledge on social media and its impact on societies. Second, it provides

an in-depth understanding of the various dimensions and the impacts of social network sites and new media in Saudi Arabia. Therefore, the paper represents one of the first attempts to explore the use of OSM and its impacts within the Saudi Arabia context. Researchers will be able to use this framework to investigate both the antecedents that could affect OSM assimilation and the risks of assimilation and other online social media used in Saudi Arabia. Third, the results of this study provide empirical evidence that can be utilized by any Saudi institution or decision maker. The recommendations of this study help in advising relevant regulatory bodies and institutions regarding the important areas in this regard and in providing recommendations and action plans.

7 Conclusion

In this chapter, it has been argued that while there have been some early efforts that emphasize the various advantages of OSM platforms at the individual level, the factors that determine the extent of use for various OSM platforms have not been explored sufficiently. In addition, the study has shown that although OSM holds considerable potential for improving the lifestyles and achievements of its users, the actual impacts (negative and positive) of OSM on users' characteristics and behaviors are not known. A conceptual framework has been proposed that can help in understanding the various antecedents that could encourage or discourage the assimilation of OSM in Saudi Arabia based on the assimilation's facets, diffusion of innovation, institutional theories, and six cases studies. With increasing pressure on individual users to improve their lifestyles and to adapt to modernity requirements, this study represents an early attempt to explore and to understand what could determine OSM assimilation and what represents OSM risks in Saudi Arabia. A number of individual, technological, and institutional factors have been identified as antecedents for OSM assimilation, and several risks that could impact both individuals and societies have been highlighted.

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The Relationship between the Development of Air Transport and the Self-Planned Travel Intention of Office Workers: A Case Study in Ho Chi Minh City, Vietnam



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Abstract The development of aviation has had a strong impact on tourism. This study focuses on exploring the development of air transport which affects the self-planned travel intention of office workers in Ho Chi Minh City, Vietnam. Using a qualitative and quantitative research methodology, the research shows very important factors caused by the development of the aviation industry in Ho Chi Minh City, Vietnam, which impact on the self-planned travel of office workers including (1) the price of the aviation service, (2) the safety of the aviation service, (3) the quality of the service, (4) the convenience of the aviation service, (5) time and psychology, and (6) the information available about the aviation service. The results of the research suggest policies for airlines in general and Vietnam Airlines in particular and suggest key recommendations for developing passengers' self-planned tourism travel by air.

Keywords Air transport development · Influencing factors · Self-planned travel intention · Ho Chi Minh City · Vietnam

1 Introduction

Vietnam's aviation market maintained a high growth rate in recent years and is regarded as one of the fastest growing markets in the world (Vietnam Airlines 2017). By early 2018, seven aviation service companies had been issued licenses of aviation operation, but only five of them were officially engaged in passenger transportation:

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Vietnam Airlines, VietJet Air, Jetstar Pacific, VASCO, and Hai Au (Seaplanes). Nevertheless, only Vietnam Airlines, VietJet Air, and Jetstar Pacific have played a significant role in the growth and development of Vietnam's aviation industry. Domestic demand increased from 12.2 million passengers in 2012 to 40 million passengers in 2017 with an annual growth rate of 21.9%. The top three aviation companies—Vietnam Airlines, VietJet Air, and Jetstar Pacific—account for 37.5 million passengers with over 95% of the domestic aviation market share. In 2017, the revenues of Vietnam Airlines and VietJet Air were VND\$63,967 billion and VND\$22,644 billion, respectively (Civil Aviation Administration of Vietnam 2018).

As a country with a rich natural and cultural potential, Vietnam's tourism activities in recent years have grown rapidly (Vietnam National Administration of Tourism 2018). In 2017, international visitors to Vietnam reached nearly 13 million, up 30% compared with 2016. Domestic tourists were about 74 million, and the direct revenue from tourists reached more than VND\$500,000 billion which is equivalent to US\$23 billion. Tourism comprised about 7.5% of Vietnam's GDP in 2017 (Vietnam National Administration of Tourism 2018), and the development of the aviation industry in Vietnam has contributed to the stimulation of tourism (Vietnam Airlines 2017).

Tourism and aviation are two closely related businesses. Around 70–80% of passengers use airplanes for travel purposes and about 70–80% of international visitors to Vietnam travel by airplane (General Statistics Office 2016). The increasing number of customers choosing air travel as a means of transportation has created favorable conditions for the domestic and international air travel market. The more visitors come to Vietnam, the more opportunities for the two industries to grow together. The transportation capacity of the aviation industry will be improved as well as the quality of infrastructure and services in order to meet the needs of passengers (Vietnam Airlines 2017). Especially for tourism in Vietnam, the development of aviation has contributed positively to the promotion of self-planned tourism (Tam 2014). However, there are not many studies on this issue in Vietnam. Therefore, this study focuses on exploring the development of air transport which affects the self-planned travel intention of office workers in Ho Chi Minh City, Vietnam, and provides some ideas aimed at encouraging self-planned tourism intention of office workers in Ho Chi Minh City.

2 Literature Review

Consumer behavior or buying intention is an important topic for businesses. Yet, there are still many different concepts about this idea. According to Bennett (1995), consumer behavior is the behavior in which consumers express themselves by searching, using, and evaluating products and services that they expect to fulfill their demands. Similarly, Hoyer and MacInnis (2008) argued that the purpose of consumer behavior as described by Bennett (1995) was understood as a series of decisions about what to buy, why to buy, when to buy, how to buy, where to buy,

how much to buy, how often to buy, etc., that each individual group of consumers has to make. According to Schiffman and Kanuk (2007), consumer behavior is a dynamic interaction of cognitive, behavioral, and environmental factors and through that interaction people make behavioral decisions that change their lives. A recent consumer study showed that travel intentions are increasingly diverse. The consumer decision-making process is a complex sequence of decisions about which destination to choose, where to go, what to see, when to travel, who to go with, how long to go for, and how much to spend (Woodside and Lysonski 1989; Woodside and MacDonald 1994; Hyde 2008; Oppewal et al. 2015). Consumers are more concerned about quality, safety, and price (Eymann and Ronning 1997; Correia and Pimpao 2008). Many studies have shown that there are many important factors affecting the tourists' intentions: (i) destination security, financial capacity, idle time, reference group (Morley 1994; Crouch 1994; Mutinda and Mayaka 2012); (ii) transportation convenience, transport costs (Chen and Gursoy 2001); and (iii) source of information, facilities, attractions, etc. (Crompton 1979; Hsu et al. 2009; Chen and Tsai 2007).

Research by Adamowicz et al. (1994), Fesenmaier (1988), and Phau et al. (2014) identified geographic distances and facilities that are significant as pertinent to the choice of tourist destinations. Oppewal et al. (2015) showed that transportation services, especially air services, are important to tourism destinations. Factors such as the quality of transport services, promotion of services, and transportation affect the travel intentions of visitors (Oppewal et al. 2015). Other factors, such as transportation costs, travel costs, and visitor income, are determinants of travel choice (Lim 1999; Morley 1994). The development of aviation has had a powerful effect in shortening flight times, which is advantageous in terms of safety and time of transport (Vietnam Airlines 2017). Development of aviation operations has the effect of stimulating demand for tourism which is becoming more popular in countries such as Vietnam (Tam 2014; Vietnam Airlines 2017).

3 Research Methodology

3.1 Research Model

From the above studies and after discussing with 11 experts in order to build up the research model based on previously inherited and adjusted factors, six determinants were used in this study—(1) *quality of service (CL)*; (2) *price of aviation service (GC)*; (3) *safety of aviation service (AT)*; (4) *convenience of aviation service (TL)*; (5) *aviation information (TK)*; and (6) *time and psychology (TP)*—which affect *self-travel intention (YD)*. Therefore, our research model is proposed as shown in Fig. 1. Hypothesis for variables in the model are proposed as in the Table 1.

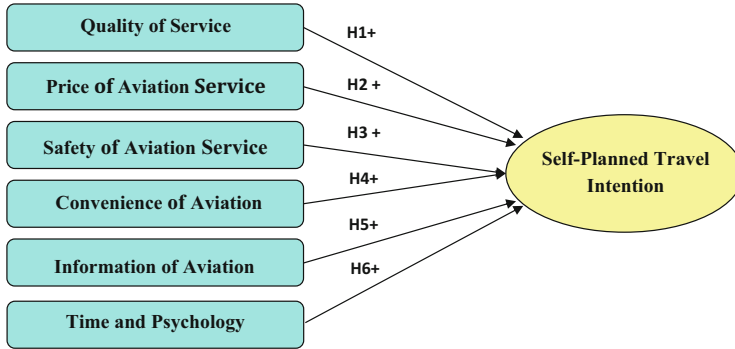


Fig. 1 Proposed Research Model. (Source: author study)

Table 1 Investigated hypotheses

Hypotheses		Expectation
H1	Quality of service has positive impacts on self-travel intention	+
H2	Price of aviation service has positive impacts on self-travel intention	+
H3	Safety of aviation service has positive impacts on self-travel intention	+
H4	Convenience of aviation service has positive impacts on self-travel intention	+
H5	Information of aviation service has positive impacts on self-travel intention	+
H6	Time and psychology have positive impacts on self-travel intention	+

Source: Author study

3.2 Data Analysis Methods

We used a number of methods of data analysis which are widely used in socioeconomic studies, such as scale reliability analysis, exploratory factor analysis (EFA), and linear regression analysis. In statistics, the reliability of a scale is evaluated by (1) Cronbach’s alpha coefficient (α) and (2) item–total correlation coefficient for each factor constituting the scale. In the socioeconomic field, many researchers agree that when Cronbach’s alpha is 0.8 or nearly 1.0, the scale is considered to be good (i.e., the consistency of the items in the scale is high); when it is from 0.7 to nearly 0.8, the scale is rated as good; and when it is 0.6 or more, the scale is acceptable (Nunnally and Berstein 1994; Peterson 1994; Slater 1995). In addition, the item–total correlation of a variable must be greater than 0.3 to be considered satisfactory (Nunnally and Berstein 1994).

After reliability analysis, satisfactory scales are further analyzed with exploratory factor analysis (EFA). In the EFA analysis, three parameters to be carefully investigated include (1) the number of factors extracted, (2) factor loading, and (3) total variance extracted. If the EFA analysis results show that these three conditions are satisfactory, it can be concluded that the EFA model is appropriate; i.e., using the EFA analysis approach in the study is appropriate. A multivariate regression analysis is also used to analyze the relationship between a dependent variable and multiple

independent variables to predict the degree of dependent variable (with limited accuracy) when the values of the independent variables are known. In addition, independent-sample T-test and a one-way ANOVA are also used to examine the effects of individual characteristics on the dependent variable in the regression model.

4 Results

4.1 Descriptive Statistics

The official survey was conducted from March 2018 to July 2018 among office workers in Ho Chi Minh City, Vietnam. A total of 400 hard copies and 600 emails with online links were sent out. Of these, 284 hard copies (73.5%) and 94 online observations (15.66%) were collected. After a screening process, 326 valid observations were used in this study. Table 2 briefly shows that the survey sample was eligible to represent the overall population.

Table 2 Descriptive statistics of surveyed objects

Aspects		Frequency	Percentage (%)
Gender	Male	142	43.6
	Female	184	56.4
Age range	<30	50	15.3
	30–40	125	38.3
	40–50	113	34.7
	≥50	38	11.7
Education	High school	16	4.9
	Intermediate	25	7.6
	College	44	13.4
	University	125	38.4
	Postgraduate	116	35.7
Times for traveling in a year	≤1	179	54.7
	2–3	122	37.7
	>3	25	7.6
Income (million)	<5	33	10
	5–10	110	34.1
	11–15	93	28.4
	16–20	56	17.1
	>20	34	10.4

Source: Author study

4.2 Reliability of Measurement Scale

The reliability test shows that the Cronbach's alpha (α) coefficients of the scales are greater than 0.6, with the smallest being the scale for customer service at α equal to 0.839 (see Table 3). All corrected item-total correlations are greater than 0.3, once the variable TL5 ("facilities of airport transportation" which has a corrected item-total correlation of 0.187, which is less than 0.3) is rejected. Thus, after the TL5 variable has been eliminated, all scales are accepted and included in the next exploratory factor analysis.

4.3 Exploratory Factor Analysis

The results of the EFA analysis in Table 4 give that all eight factors were extracted at an eigenvalue of 1.773 and a cumulative rotation sums of squared loadings of 63.57%. These indicate that the EFA approach is appropriate for this study. Moreover, the KMO of 0.795 and the Bartlett's test sig = 0.000 presented in Table 4 further confirm the appropriateness of the EFA method used in this study.

The analysis of the factors affecting the intention (YD): The results of the factor analysis show that the variables are categorized into five groups, with a cumulative variance of 73.597%, larger than 50%, so the scale is appropriate. The KMO coefficient is equal to 0.821, which is in the range of 0.5 to 1; therefore, factor analysis is appropriate. The Bartlett test has significance equal to 0.000, indicating a high level of significance. All factor loading values of the independent variables are greater than 0.5 (see Table 5).

Table 3 Reliability of measurement scale

Code	Factor	Cronbach's Alpha
CL	Quality of service	0.822
GC	Price of aviation service	0.814
AT	Safety of aviation service	0.835
TL	Convenience of aviation service	0.820
TK	Information of aviation	0.833
TP	Time and psychology	0.859
YD	The intention of office workers in HCMC with self-planned travel	0.604

Source: Authors' calculations

Table 4 Exploratory factor analysis and scale reliability analysis

Factors		Component					
		1	2	3	4	5	6
Time and psychology	TP5	0.838					
	TP3	0.810					
	TP4	0.765					
	TP2	0.764					
	TP1	0.751					
Information	TK3		0.827				
	TK2		0.756				
	TK4		0.752				
	TK1		0.736				
	TK5		0.734				
Convenience of aviation service	TL 3			0.811			
	TL 2			0.802			
	TL 4			0.788			
	TL 1			0.689			
Quality of service	CL5				0.891		
	CL3				0.873		
	CL2				0.832		
	CL4				0.783		
	CL1				0.746		
Price of aviation service	GC4					0.812	
	GC3					0.776	
	GC1					0.750	
	GC2					0.722	
Safety of aviation service	AT1						0.689
	AT3						0.855
	AT2						0.841
	AT4						0.760

Source: Authors' calculations

Table 5 Rotated component matrix of intention (YD)

Code	Factor 1
YD ₁	0.699
YD ₂	0.775
YD ₃	0.721
YD ₄	0.749

Source: Authors' calculations

4.4 Results of Linear Regression Analysis

The study shows the relationship between the development of air transport and the self-planned travel intention of office workers in Ho Chi Minh City, Vietnam, which is formed as follows:

$$YD = \beta_0 + \beta_1 * CL + \beta_2 * GC + \beta_3 AT + \beta_4 * TL + \beta_5 * TK + \beta_6 * TP + e_i$$

The 326 valid observations and the results of the linear regression analysis process are given in Table 6.

The results show that all six variables are significant at the 0.05 significance level (0.05). This indicates that there is a linear relationship between the dependent variable and the predictor variables. The linear regression analysis results presented in Table 6 give that the adjusted R-squared coefficient is 0.692, which means that 69.2% of the variation of the dependent variable is explained by the independent variables attached in the model. The Durbin–Watson and VIF coefficients of the model show that the autocorrelation phenomenon and multi-collinearity were not significant.

Table 6 Regression coefficients

Variable	Coefficients	Variance inflation factor (VIF)
Cons.	-.3174 (.166)	
CL	.248*** (.023)	1.099
GC	.302*** (.024)	1.117
AT	.073*** (.019)	1.010
TL	.362*** (.021)	1.158
TK	.071** (.021)	1.059
TP	.070** (.024)	1.051
R-squared	.745	
Adjusted R-squared	.692	
Durbin–Watson	1.861	

Source: Authors' calculations

Standard deviation (for coefficients) in brackets

Note: ***, **, and * indicate the statistical significance at 1%, 5%, and 10%, respectively

5 Discussion and Implications

Based on the above results, the factors contributing to the development of air transportation affect the self-planned intention of Ho Chi Minh City office staff, including six factors which have positive influence (+); specifically, the “convenience of the aviation service” (TL) factor is the most influential one, with a coefficient of 0.362. Price (GC) is the second factor, with a coefficient of 0.302. Quality of service (CL) is the third most important factor, with a coefficient of 0.248. Safety of the aviation service (AT) and information about the aviation service (TK) are the next most influential factors. The above results are also consistent with the Vietnam aviation industry’s (2017) identification of factors affecting the use of air travel by travelers, but differ in relation to in the degree of influence of the factors of price, safety, and comfort. In addition, time and psychology (TP) are considered in this study and are factors which affect the self-planned traveler’s intention. They are also new elements in this study.

In order to raise the intention toward self-sufficient travel of office staff in Ho Chi Minh City, we have some suggestions:

Convenience of aviation service (TL): The convenience of the service does not include the expansion of the network of destinations for the airline industry, the convenience of serving passengers such as a parking lot, convenient ticketing services, or courier services. This is why Vietnam Airlines should expand the network of air routes to new localities, especially those with many attractive tourist destinations.

Price (GC): This requires the Vietnam aviation industry to have a reasonable pricing policy for each customer. There should be many fare levels for customers to choose from; specifically, there should be a flexible pricing mechanism for different times of the year.

Quality of service (CL): Quality of service should be ensured from the earliest stage by providing information about the organization of the service. Air transport companies in Vietnam need to improve the quality of their services to serve tourists. In addition to raising the qualifications of employees, the airlines need to have policies intended to improve the morale and service attitude of employees because this is a factor that is highly appreciated by customers. Besides, it is also necessary to further improve the facilities and to modernize the equipment of the aviation industry and of each airline.

Safety of aviation service (AT) and aviation service information (TK): Improving the safety of visitors will make guests feel secure when flying. The airlines need to continue to pay attention to safety conditions for travelers, especially the need to invest in equipping new aircraft lines using high safety standards. In addition, full information on flight schedules, routes, recommended programs, etc., would also improve the rate of travel.

Time and psychology (TP): Time and psychology are factors affecting the self-planned traveler’s intention. These factors are intrinsic; however, the airlines in Vietnam need to save time for visitors through less delayed flights and improving

flight schedules. This is necessary to create a comfortable psychology for guests about using aviation services.

6 Limitations and Recommendations for Future Research

The limitation of this study is its focus on office workers in Ho Chi Minh City. Our next study will expand the field of research to all of Vietnam, broadening the samples investigated, so that policy implications can be extended to shipping companies which are not included in this analysis.

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Learning Taxonomy-Based Education Game Design to Deploy Learning Objectives to Game Design: A Case Study of Leadership Education



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and Aria Bayu Pangestu

Abstract This chapter aims to propose educational games development to facilitate learning and maximizing joy during the learning process. The joy of learning through games has been tested in many subjects of teaching. Most of them show an improvement in the effectiveness of the learning process. However, developing a proper education game requires adequate analysis and methodology. The methodology in developing an education game combines expertise in specific knowledge areas regarding the learning objectives and content of the game, including rules, rewards, challenges, difficulty, and environment. Despite the growing research related to leadership, the application of experiential learning for leadership education to corporate participants is currently limited. This chapter presents the methodology of development and implementation of an educational game “Chaotic Company” to a corporate participant who has learning objectives of execution focus, concern for order, adaptability, and organization awareness. The developing process starts with analyzing the knowledge area and determining the learning objectives and delivery strategies. These analyses relate to the concept of the game environment, elements of game used, and the levels of the game. The result revealed that the game’s case, “Chaotic Company (CC),” has direct relevance in increasing understanding and analysis of the learning objectives.

Keywords Corporate Participant · Development Methodologies · Education Game · Leadership · Learning Objectives

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1 Introduction

Application of games is one of the innovative methods to inhibit active learning and experiential learning and excite student interest, participation, and concentration. A game is any activity involving a set of rules and challenges where players compete using their knowledge and skills to win a specified goal (Rowles and Brigham 2005). In gaming, students are required to be active learning participants, considering their strengths and weaknesses to present their performance, and reflect future goals accordingly (Kolb 2014). The main benefit of gaming as an educational strategy is that single activity covers a large quantity of learning material (Boctor 2013).

Game-based learning, named as serious education game, refers to a methodology that applies game principles to promote students' learning while gaining positive cognitive and affective experience in a learning process (Michael and Chen 2006). Game-based learning can enhance the social skills of learning participants and improve their skills in understanding, analyzing, and solving real-life problems (Kirikkaya et al. 2010). Students learn actively through game-based learning, gain greater interest, and leave a more profound impression on the learned materials than using conventional methods (Papastergiou 2009).

In the past, studies on game-based learning focused on the digital and non-digital type of game. Games such as board games, card games, and digital games began to be widely used in the learning process since they provide challenges and fun in the learning process without sacrificing the objectives of learning. A digital game can enhance learning motivation and trigger positive emotions among students; however, a digital game has difficulty in providing face-to-face interaction that board and card games can provide (Liu and Chen 2013). The face-to-face interaction in learning is vital since it exposes the student to human emotional expressions, physical actions, and spoken tones (Billinghurst and Kato 2002). Using the educational card and board games, the student may elevate the interpersonal interaction directly between facilitator and students as well as among them to a degree unreached by the digital aspects (sound, audio, and visual effects) of digital games.

The participants of the game-based learning are not only focused on children in elementary education but also can be used for students in higher education as well as an experienced person of industry practitioners. While Ariffin et al. (2014) evaluate the effectiveness of game-based learning in higher education, Strickland and Kaylor (2016) describe the essential foundation theory for the integration of game-based learning in nursing education and discuss crucial components related to the implementation of one educational game in nursing.

Choosing the appropriate games, in terms of learning objectives, target audience, and the age of learners, is a challenge in itself. Improper games design may lead to the reverse impact of the learning objectives and may not attract the interest of the student. There is some developed educational game in different domains such as entrepreneurship (Guardia et al. 2014), nursing (Strickland and Kaylor 2016), circular economy (Whalen et al. 2018), and leadership (Sousa and Rocha 2019). Most of the approaches in the development of educational games emphasize that the

building blocks of an educational game are from learning materials of domain knowledge. Hence, the development frameworks rely on the relationship between learning materials in domain knowledge and design of the game. Ahmad et al. (2015) present survey data of the different design frameworks used for educational games and analyze them against several criteria. The development frameworks that rely on learning materials may become ineffective since the development process does not seamlessly map between learning materials, the hierarchy of learning objectives, and game design. This situation might occur in domain knowledge, including the leadership domain.

Dobbins and Pettman (1997) mention that leadership is a unique ability to motivate other people to work on achieving common goals and make people present an extraordinary performance. Nurturing skills of a person in the context of leadership education is vital since the leadership process is an essential factor for determining success in the career path. However, leadership is a challenging domain to teach in a traditional education system since the delivery of leadership theory is not enough to nurture leadership skills, but it needs to be followed by the process of cultivating leadership skills. Therefore, we aim to develop a framework for educational game development in the leadership domain, considering the mapping between learning objectives, learning materials, and game design. In our proposed framework, we develop a proof of concept of educational game for leadership, Chaotic Company, to demonstrate the usefulness of our proposed framework.

The remainder of this chapter is organized as follows. Section 2 presents reviews about recent literature related to educational games, leadership, and learning taxonomy. The methodology of game development is presented in Sect. 3. Furthermore, Sect. 4 discusses the result and implementation and succeeds by discussion in Sect. 5. Lastly, Sect. 6 presents the conclusion of this research and possible future direction.

2 Related Work

2.1 Educational Game

The educational game methodology has an advantage over traditional education where the learning process is designed to solve practical problems, and emergence is situated in the simulated environment. The typical way of developing educational games is based on learning models, pedagogical components, age and gender, and game design aspects (Baranowski et al. 2008; Gress et al. 2010; Hirumi and Stapleton 2009; Mikropoulos and Natsis 2011). The learning models in educational games are constructivism, behaviorism, cognitivism, and humanism. Educational game pedagogy is different from the traditional education approach that has a paradigm focused on the teacher as the agent of the action and less as a facilitator of learning (Sousa and Rocha 2019). Van Staaldunin and de Freitas (2010) listed

12 elements of the game from the literature and grouped those elements into four dimensions, such as learner specific, pedagogy, representation, and context.

The three perspectives of the learning process in educational game theory are the learning process driven by game technologies (Gee 2003; Prensky 2003), the educational game development process, and pedagogies. Here, the learning process occurs not only within a game but also through several activities that are complementary to the game. As mentioned in the last perspective, the educational game is pedagogical innovation driven by the principles of game design. Hence, the learning process is using game mechanisms and components are role-playing, competition, achievement, and reward system (Kapp 2012).

2.2 Leadership

Leadership relates to the skills and degree of influence of another person to move in the direction of goals, make decisions, and do things according to the guideline (Kets De Vries and Florent-Treacy 2002). Leaders adopt different leadership styles, depending on the environment and situation, not only choosing a dictatorial style (Zaccaro et al. 2001). Lewin et al. (1939) mentioned that there are three leadership styles based on decision timing: autocratic leaders, democratic leaders, and Laissez-faire.

Autocratic leaders make decisions without discussing with their team members. These leaders might appropriate when decisions need to be made in a short time, and agreement of the team is not necessary for an outcome. On the other hand, democratic leaders include team members in the decision-making process, but they make the final decision. Lastly, in laissez-faire style or autonomy, leaders give their team members freedom to do their work and to set their deadlines. Leaders provide support with resources and advice if needed, but they do not get involved.

Bass (1990) identified two types of leadership based on approach to team members: transactional and transformational. Transactional leaders grow in situations of low complexity, but transformational leaders emerge in cases of high complexity. In transactional leadership, the followers get a reward for meeting the performance targets. On the other hand, in transformational leadership, the leader develops a vision, respect, and trust and exhibits charisma. Also, the leaders pay personal attention, provide stimulation, and challenge their followers with new ideas and approaches.

2.3 Learning Taxonomy

Bloom's taxonomy is represented in higher education's objectives across the disciplines including science and engineering disciplines (Conlon 2008; Pappas 2004), as a creative method of teaching problem-solving in engineering design (Striegel and

Rover 2002). Bloom’s taxonomy is a method to classify learning activities as a hierarchy in terms of cognitive difficulty (Pappas et al. 2013), where the higher levels require more sophisticated cognitive thinking skills. As we move upward to the hierarchy, the learning activities require more advanced thinking skills. The thinking processes characterize each level, as follows: knowledge, comprehension, application, analysis, synthesis, and evaluation.

3 Game Development

We propose an alternative design framework for educational game development addressing the mapping issue of learning taxonomy and game design, as illustrated in Fig. 1. In game design, the first thing to determine is the purpose of making the game. Without a clear use, the process of making the game will become unfocused. As a game designed for leadership education, Chaotic Company aims to develop the skills of its players related to leadership in business and management contexts. In

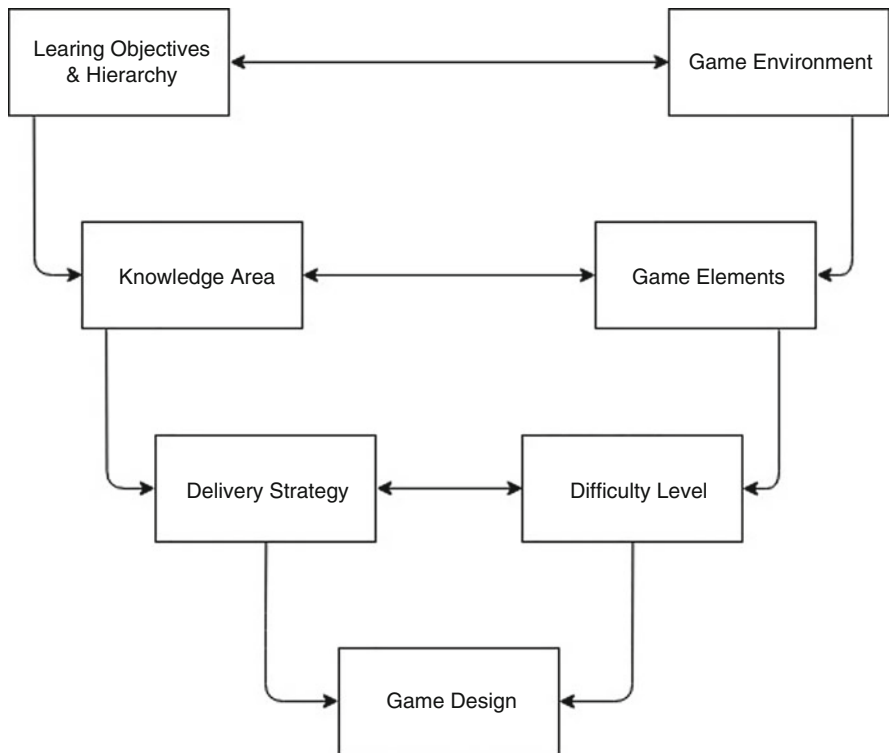


Fig. 1 Proposed educational game development framework. (Source: authors own study)

this case, the selected leadership skills are execution focus, concern for order, adaptability, and organization awareness.

Execution focus is a skill to focus on the tasks and responsibilities that are owned by the positions they have. This skill is vital for a leader because the leader must be a role model for his/her subordinates. If a leader cannot demonstrate his performance on this skill, it will impact on employee motivation. Concern for an order is a skill to know the relationship between a division and other divisions. By understanding the relationship between the divisions, a leader can determine the appropriate task for each division to achieve an effective and efficient system. Adaptability is the ability to adjust to changes that occur. A leader must be able to formulate appropriate strategies in responding to changes to survive or even bring the organization to a better condition. Organization awareness is the ability of a person to be aware of the status of the organization and what things happen therein. An ignorant leader can impact on the quality of the strategy formulation since the basis of strategy development is not merely on actual conditions and existing information. To avoid this, a leader must have a good organization awareness.

The next thing to note after setting a goal is the game environment. As games that bring the business and management context, CC must be created to simulate the business and management processes of a company. Besides, it is necessary to determine the nature of the game, whether it will be competitive, collaborative, or both. To achieve the learning objectives, the CC is designed to be played collaboratively because the leadership skill development process will be more effective when based on the collaborative process.

The next stage is the process of determining the gameplay of the game that includes rules, rewards/punishments, and challenges. The development of the gameplay relies on the game environment and considering the learning objectives. Based on this, the elements that must exist in the Chaotic Company are as follows: First, the rules that accommodate the collaborative where the players must have a common goal and rewards/punishments given will impact the entire players. Second, the role of the players should be able to accommodate the learning objectives (in this case, execution focus and concern for order) as well as business and management context. Third, the challenge given should be able to facilitate adaptability and also organization awareness so that the strategy made by the players in playing this game should pay attention to the changes and situation of the game today.

After determining the gameplay, the next thing to do is create scenarios in playing a game. Scenario development becomes essential to adjust to the level of difficulty since players may have different backgrounds (e.g., experience in gameplay, age, and even work experience). Various scenarios can have setup, gameplay, and even different purposes. Also, scenarios aim to vary the difficulty level of the games (e.g., to provide a higher level of difficulty, create more complicated situations or scenarios with more difficult challenges). CC is a game designed for leadership education, so the scenarios created must take into account the leadership experience of the players. The more players' leadership experience, the more complicated the scenario will be. In this case, CC can be played using three different scenarios for players with low, medium, and high leadership experience levels.

4 Result and Implementation

4.1 Gameplay

One of the characteristics of Chaotic Company is collaborative design. There will be five players who play this game, each with their unique role: “R&D manager,” “finance manager,” “production manager,” “marketing manager,” and “HR manager.” Each player has employees, capital, and products in the inventory, known as WIP (work in process), at the beginning of the game. They also have three demand cards that represent the demand for the company. Figure 2 illustrates the layout of the board game Chaotic Company.

The game starts by drawing a new demand card. After players observe the demand cards, the first turn will be of the player who acts as “R&D manager.” The player will decide what product to produce and the quantity based on the number of employees in that division (each employee will have specific lead time and a maximum capacity for each product). After the “R&D manager” finishes his or her turn, the next turn will be of the “finance manager” who should decide the product and its quantity to produce. The product will be coming from its inventory (WIP). When finished, the next turn will be of the “production manager” who decides the product and its number to be produced. A bit different from the “R&D manager” and “finance manager,” there will be production costs for each product that division production made. When “production manager” ends his or her turn, the next turn is of the “marketing manager” who will sell the product (remember that similar to the previous managers, the product produced will be limited by the number of product in WIP, number of employees, a maximum capacity of each employee, and lead time). Finally, the “HR manager” will decide whether to hire new employees or to train the employee to the next level (the number of employees possible to hire and training depends on the number of employees in HR division).



Fig. 2 Chaotic Company board game. (Source: Mulyono 2017)

HR division can also retain or training HR employees. If an employee decided to take training, the employees stop doing any work. The hiring and training process takes cost and lead time.

After players finish their turn, they will draw an event card (one event card for each round). The event card will affect the process that happens in that round (e.g., there is an event card that gives additional lead time or reduces lead time). Then, to close the round, all players must count the number of a product that remains in their WIP and pays inventory cost. The game then moves to the next round.

In each round, all players will do the same thing. However, starting the second round, at the beginning of the turn, each player will conduct these activities: (1) Reduces lead time for each process by one period. (2) Decide if they will make their employees do overtime (overtime will reduce another one lead time, but it needs cost). Overtime can only be done one time only for each employee in each round. (3) Move the product that already finishes the process to the next division. The finished product is placed in WIP except for the marketing division, who will sell the product based on demand and receive the money. Since the players are not allowed to borrow money, they lose if they cannot pay the inventory cost at the end of each round. The group who wins the game will be the group that has the most money at the end of the game.

4.2 Implementation

The game needs to be played in training to measure effectivity. Chaotic Company has been used in training held by one of the state-owned companies in Indonesia. The trainees can be divided into three levels from the supervisor level to the manager level. To accommodate the different needs, the development of the game scenario is necessary for each managerial level. For the lowest managerial level, the rule uses the default rule, while for the middle management, there will be an additional rule in which for employees who do nothing, the player needs to pay a penalty cost. In the highest level of management, a further condition of defect product is established. The player needs to roll dice when transferring a product to the next division or sell it to a customer. If they roll 1 or 2, one product will defect and need to be discarded from the game.

In this training, the Chaotic Company is played by three different groups who compete with each other to get the most money. The time to play the Chaotic Company is 2 h, which consists of 10 min to explain the game, 20 min to trial the game, and 90 min to play the game. The game usually ends after 6–9 rounds. After the game is finished, the trainees are asked about the lesson learned about the game.

5 Discussion

Our research presents the thinking process of the board game development as a tool of learning. In designing a board game for the teaching and learning process, it is essential to focus not only on the learning content and goals but also on the game mechanics as well as accommodating the gamers' needs. In designing a game board for training, it is essential to apply the ARCS model developed by John Keller in 1987. ARCS model explains that excellent learning and teaching tools need to invoke four aspects of a learner, which are as follows: attention, relevance, confidence, and satisfaction (Li and Keller 2018). The board game designed as a tool of learning also needs to be designed to invoking these four aspects. Chaotic Company board game is designed to try to invoking those four aspects from a learner who is playing this game. Event cards and an element of surprises designed in the game are created to invoke the attention of the learner. As for the relevance, Chaotic Company is intended to use a real division name and real product name from the state-owned company to give a sense of simulation of the actual situation. The difficulty of the game is designed to be challenging while still manageable to beat. This controlled difficulty is intended to invoke the confidence of the player. Moreover, giving rewards and competition between groups will invoke a sense of satisfaction upon finishing the game.

As creating a board game has a lot more considered factors and has higher complexity, a question arises: Whether the impact of a board game as a learning tool is higher than other methods? To answer this question, the researcher tries to get feedback from the client regarding the effectiveness of using board games in teaching in the state-owned company, compared to other methods usually used there (Lecture, Class Activity, Group assignment). The result is acquired from 5 different batches of the game, showing that all batches have a high satisfaction rate of the training. The client mentioned that the learner shows a high level of engagement in training and a high level of happiness compared to other methods ever held for the same purpose.

This testimonial from the client gives the researcher better confidence to say that even though creating a board game is more complicated than designing other training tools, it has a more significant impact and a higher level of engagement in learning for the target learner. However, to achieve this, a specific method of creation is required. All the aspects of the board game need to be carefully tested to ensure its balance and maximize its effectiveness. This research demonstrates the Chaotic Company board game in teaching leadership; this research only showing one specific learning topic using one particular game. The whole effectiveness of the game board in teaching and learning still needs further studies.

6 Conclusion

We have successfully developed an educational game Chaotic Company using a strategy that combines learning objective and taxonomy, domain knowledge, and game design. The game described in the chapter allows learning participants to understand and implement learning objectives of execution Focus, concern for order, adaptability, and organization awareness. This game uses a simple or more complex scenario depending on the managerial responsibility in the company, analyzing the situation of the company, making decisions to improve company competitiveness. During gameplay, students learn effectively about the management role of their companies, receiving the essential external and internal information, changing policy, and responding events. In this regard, students can learn materials in depth to improve their educational performances while enjoying the game.

Leadership is considered valuable to the success of the company. In the context of strategic management, the complexity of the business environment, policy changing, and technological advancement are main forces of uncertainty, and educational games have shown a significant contribution to leadership skills development. The new educational board game we have developed with our framework has shown satisfactory results in achieving learning objectives and entertaining students.

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Part III

Marketing

Underestimated Radio in the Latvian Market



Jelena Šalkovska, Anda Batraga, and Ilgvars Rukers

Abstract The purpose of this research is to reveal why, after introducing a new research methodology of radio ratings, the audience for a lot of stations has even doubled and the number of total radio listeners in Latvia has significantly increased. To conduct the research, regular listeners' research empirical data were compared and analyzed, as well as a number of major industry experts were questioned. The research results indicate the reasons why "Day-After-Recall" radio research method provides much better results for radio as media than previous "Diary" method. These findings may and probably will fundamentally affect advertisers' media strategy decisions in the Latvian market. With much more precise and objective radio rating research tools, it is proven that radio as media has been undervalued for years. This misperception of radio potential has been based on wrong assumptions that radio is not able to generate enough audience in order to sustain its important role in reaching general audience nowadays.

Keywords Radio · Rating research methods · Media strategy · Brand

1 Introduction

Radio is one of the most important mass media ever seen by humanity. Popularity phenomenon of radio is obvious; however, society's comprehension of the role played by the radio is scanty. Nevertheless, radio still has a constant position in terms of building media strategy. For example, data of the Latvian Advertisement Association reveal information about the market share of the Latvian media advertisement, where radio accounts for 12% of entire advertisement market; hence, it is the third most popular public media. For comparison, 42% of market share are taken by TV and 22% by Internet (LAA 2017).

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Constant popularity of the radio is based on its capacity to adapt to ever-changing marketing environment and to be able to offer diverse content. Dubber (2013) states that radio creates different experience for people, since content varies at different times, and depending on what is important to the audience, listeners attention levels are also changing.

Nevertheless, radio is also experiencing the changing world of marketing as other media institutions do. Therefore, a more precise understanding of audience will provide better positions in strategy planning process, as well as greater chances to get on “the shopping list.” This aspect is also explained by Evans (2014) saying that all other media organizations and public radio stations are facing pressure from technological disruption, changing consumer habits, and new threats to their business models. Evans explains that many radio stations are addressing these challenges by enacting strategic changes within their organizations to deal with the changing mediascape.

Dubber (2013) also explains that radio is a medium within the broadest sense of the word. That is to say, the role of the radio is ambiguous—it is a medium allowing the public to consume diverse content, starting from news, music, entertainment, information, and other sonic manifestations. Besides the role of the radio has changed during the course of the history, because the radio has existed in many forms, in many places, at different times, serving different purposes of society and audience, and the functionality and role of the radio has been shaped by different political, economic, social, and cultural forces.

Radio mainly differs from other media (TV, Internet, environment, printed media, cinema, etc.) in respect that communication with the public is largely sound-based. Radio almost do not engage in visual communication, and the content is built on verbal communication, integrated in music and sound effects. This fact, for its part, is the uniqueness of this medium, which is especially important if we are to talk about the radio as a medium, which fits in the general media strategy (Altstiel and Grow 2017). One must remember that in terms of media strategy the radio makes a bridge between several parties involved. Relationships behind radio industry stakeholder mechanism indicate a kind of vicious circle, where fluctuations affecting one of the components shall have a definite impact on the rest of them.

As described in Fig. 1, there are four major stakeholders in the radio industry:

1. Listeners, who demand radio content (a specific radio format, music, news, shows, personalities, etc.). In order to consume the desired content, listeners must “give away” their attention.
2. Radio, which produces content demanded by listeners in a specific target group. To create the content radio pays money (to producers, copywriters, radio hosts, technicians, royalties, broadcast licensees, overheads, etc.). Money is earned by “selling” acquired listeners’ attention to advertisers. Listeners’ attention amounts available in each radio’s virtual warehouse are measured by regular rating research data.

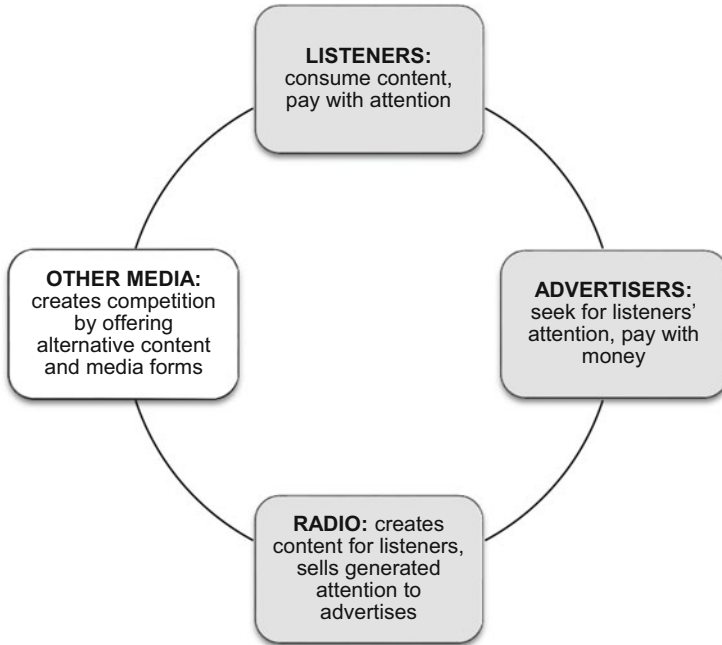


Fig. 1 Stakeholders in radio industry. (Source: Batraga et al. 2018)

3. Advertisers are interested in buying the listeners' attention in particular target groups. Usually, they seek most cost-effective ways how to reach audience by calculating cost- per-thousand and other media investment efficiency indicators.
4. There are other media like TV, Internet, social networks, untraditional media, below-the-line solutions, PR, and the rest of advertising channels, which also seek how to reach more audience, even beyond their initial media format. Competition at this level also leads to higher indirect competition, which can facilitate drop of listeners both in the short term and in the long run (Batraga et al. 2018).

Competition among media categories has substantially increased. Under these cross-media competition conditions, artificially underestimated media will lose their power to compete. In addition, Evans (2013) argues that other online attention rivals provide products and features to obtain the attention of consumers and sell some of that attention, through other products and services, to merchants, developers, and others who value it.

Considering both the micro and macro competition in media market, the only thing that matters is accumulating as much of attention as possible. Consumers supply time, namely their attention, to the market in return for content that entertains or informs them. Advertisers, on the other hand, demand this accumulated attention, so they can deliver messages that will increase their sales and profits (Evans 2017).

In latest times, “other media” has to be treated as seriously and taken into account as never before. As concluded by Edmond (2014), both other transmedia content and transmedia radio expand the edges of conventional storytelling. Edmon implies that stories become more dispersed and hybrid, serial, and experiential rather than finite and linear. Edmon also mentions that this open-ended structure encourages audience contributions, but it also enables media franchising and content recycling. Edmon believes that the projects are responsive to more “active” and “engaged” media audiences, who uncover new content via a range of platforms and who are willing to follow a project’s expansion across many more.

Awareness of this connection is essential, as it is the basis of radio industry business. Berger (2011) points out that since radio stations, television stations, and networks make money by delivering audiences to advertisers, the size (and nature) of the audience of these stations and shows is of crucial importance. Berger claims that the larger the audience gets, the more a station or network can charge for running commercials.

Berger (2011) also explains another very important aspect, why knowing the ratings is crucial. Not only ratings allow to determine the “correct” price for an advertisement unit or 1 s on air, but it also reveals to the station owners how good and efficient the business model chosen by the radio is, as ratings allow determining the amount of listeners and to compare it to direct rivals. Berger (2016) reveals another important aspect—audience studies not only determine the reach but also allow comprehending the profile of the audience. It is especially important where we arrive at building media strategy. It allows identifying certain demographic and psychographic parameters in different target audience groups, which in their turn pave a straight road to audience of interest with a proper message and form of addressing. If the strategy is based on improvement of efficiency of marketing resource investments, understanding of the audience ensures that the right radio station, airtime, program, and advertisement form are chosen and optimum advertisement investment amount determined.

Bertrand and Hughes (2018) point out that ratings in their basic sense are measuring the reach and they identify five core functions of ratings:

1. Media owners or operators measure their position against their competitors and determine what they will charge advertisers.
2. Advertisers decide whether to advertise within a certain program and how much to pay for this privilege. Content makers decide whether to continue to produce this content and the narrative or ideological direction in which to take it in the future.
3. Schedulers decide whether to retain a program and how much they are willing to pay for the right to do so.
4. Academic researchers use ratings as research data and to formulate research questions for future study.

Considering the aforesaid, it is possible to determine how significant a direct rating is in the context of the entire industry. If ratings are not determined precisely, it

has a significant impact on the entire media strategy. If ratings are low, the role of the radio as a medium may be underestimated.

For example, according to Barry (2016), radio as a medium has been underestimated for quite a while—also people from creative walks of life perceive radio as a secondary medium, and they put less effort in preparing a quality advertising material intended for that medium. Barry (2016) explains that creatives just do not seem to take the same amount of pride and care with radio. In a traditional ad agency, the relatively “unglamorous” radio briefs are often left to the junior teams. The reality of writing radio ads is this: it is easy to do something that will answer the brief, but this seems to be a false sense of security. Barry indicates that it is actually hard to do something great with radio. He states that this could be because visuals are more repeat-friendly than sound. Nevertheless, Barry also concludes about the huge potential of radio by saying that as with any medium, once you understand its possibilities, it suddenly opens the door to great ideas.

Therefore, the purpose of this research is to reveal to what extent, after introducing a new research methodology of radio ratings, the audience for a lot of stations has even doubled and the number of total radio listeners in Latvia has significantly increased. We put forward the following hypotheses:

1. There is a substantial difference between the new and the old rating methods implemented in Latvia.
2. The impact of radio has been underestimated over years.
3. There are huge gains of audience numbers in general, but major audience profile trends remain the same.

In order to achieve the goal of the research and to test the proposed hypothesis, we set the following tasks:

1. To reveal differences between the old and the new rating methodology.
2. Analyze radio listeners’ research data from 2017 in different gender, age, income, and education level groups, in order to reveal particular trends in Latvian market, as well as compare these trends with audience profile generated by the latest rating 2018 research data.
3. To approve or reject the proposed hypotheses, as well as to draw theoretical-and-on-research-results-based conclusions and build strategic recommendations for both media owners and advertisers in Latvian media market from media strategy building perspective.

To conduct this research, regular listeners’ research empirical data analysis was applied. The regular research data are provided by a global research agency Kantar TNS Latvia, but modeled and processed by the authors. In the article, the following research methods were used: academic and industry literature analysis, radio listeners’ research data comparison between data from 2017 with 2100 respondents, and the latest Winter–Spring 2018 data with 4528 respondents.

2 Research Methodology

In order to test the hypotheses proposed, radio rating research methods will be analyzed and compared from theoretical and practical viewpoint. Juxtaposing current research method and the new method, features, shortcomings, and advantages of each method will be identified. Further, within the framework of the research, changes in ratings will be analyzed following data from research of Autumn 2017 and comparison will be made to data from research in 2018, obtained by the new method. Finally, the changes in total audience profile trends will be analyzed in basic parameters such as gender groups, age groups, income groups, and education groups.

Research data files are delivered to major media agencies, advertising agencies, media clients, and media, which using statistical software Supernova can reveal different rating aspects allowing us to take either media investment decisions or strategic management decisions for media owners and managers. It is the only official radio rating statistics accepted by the industry members in Latvia.

Data are visualized and described in charts and tables. There are three indicators used: either it is listeners or audience in “Reach” numbers, “Reach %” indicating Reach for a specific radio station divided by the total number of audience within target group between age 16 and 74, or it is percentage showing proportion of all radio listeners or people in a specific demographic group compared to all listeners or population in Latvia. “Reach,” on the other hand, shows the total number of listeners in a specific target group per week (Kantar TNS 2018).

3 Two Different Rating Research Methods from Theoretical and Industry Perspective

In order to acquire an in-depth analysis of methods of radio rating research, expert surveys were performed, addressing managing director of the international research agency Kantar TNS, Martins Traubergs, and customer manager of Kantar TNS, Solvita Kronberga. The interview took place on June 5, 2018. In the interview, we asked about specifics and key differences of previous and current method. Kantar TNS has performed radio rating research in Latvia since 1993. Within the industry these are the only recognized researches serving as a basis for media strategy and choosing appropriate channels both for advertisers when working with the radio directly or using media and advertising agencies.

Until the very spring of 2018, the only research method used was the Diary method where approximately 2000 respondents were surveyed to obtain data for each research, and respondents were given a proper format diary where he or she had to specify which radio station on what day and during which period the respondent had listened to. The new method is called Day-After-Recall where respondents are selected randomly during the entire research period and they are asked about radio

Table 1 Radio rating research method classification

Declarative measurement (Based on words/records of the respondent)	DAR (Day-After-Recall)—based on person’s narrative about listening to radio yesterday. Most often as CATI (computer-assisted telephone interviews).
	Diary—request to fill in the radio listening diary for a certain period (in a paper format, online, mobile, combination of some methods).
Passive measurement (by means of technologies, which record respondent’s radio listening “passively”)	PPM (Portable People Meter), Mediawatch, MediaCell, etc.

Source: Traubergs and Kronberga (2018)

listening experience in a previous day. DAR method is evidently praised as more precise, because not only it logs listening time for each station formally, but its questions are also more focused. Basic questions asked during a DAR interview:

1. Spontaneous identification of radio recognition.
2. Questions about course of previous day. The beginning and end of the day.
3. Identifies places where respondent was at in previous day;
4. Which radio stations were listened to yesterday? The interviewer names radio station in rotating sequence. Identification of radio stations, which the respondent listened to during previous day.
5. Questions about time, time interval, and listening to particular radio station.
6. Questions about listening to particular radio station for at least 8 min in a 15-min span.
7. Questions about listening to other radio stations within the last week to model weekly reach (Traubergs and Kronberga 2018)

Third method called Portable People Meter is also used in international practice. All methods are described in Table 1.

Despite the fact that the “new” or DAR method is evaluated by professionals as evidently more accurate, because, for example, the number of respondents is more than twofold, each of the said methods have their pros and cons. The advantages and shortcomings of each method are summarized in Table 2.

An investigation by Helmane (2018) when questioning radio and advertising market professionals reveals a number of major conclusions:

1. Customer director of the research agency Kantar TNS, Oskars Rumpeters, additionally points out that the new DAR method shows both higher daily and weekly reach, which could be explained by the fact that this method at first asks a respondent to recall events from previous day and only then about radio listening during these routine events. Projecting of this memory helps the respondent to remember also short radio listening moments more precisely.
2. Executive director of the Latvian Society of Broadcasting Organizations (LRA), Andris Kenins, admits that the new survey method provides much wider circle of respondents, which actually allows researching radio listening habits more

Table 2 Pros and cons of the radio rating research methods

Diary method	Day-After-Recall method	Other digital research methods
Advantages		
<ul style="list-style-type: none"> • A higher likelihood that all cases of radio listening will be recorded, because the respondent has been warned that he or she has to pay attention to habits during the entire week • A possibility to calculate weekly reach more accurately 	<ul style="list-style-type: none"> • Easier to recruit, easier to reach certain target groups • Easier to achieve data control quality • Less effort from respondents • Experience of other countries shows that it attains higher reach indicators 	<ul style="list-style-type: none"> • United TV and radio currency • Data specifications—data obtained during 1 min • Registers all cases of listening to radio • Registers all platforms and sites of radio listening • Fast data supply
Disadvantages		
<ul style="list-style-type: none"> • More difficult to recruit, more difficult to reach certain target groups • “Overestimation” or large stations, less accuracy regarding the small stations • It takes more time to receive feedback about completed diaries 	<ul style="list-style-type: none"> • Fluctuations possible when modeling total weekly reach • There is a risk of overseeing the short periods of radio listening (due to psychological processes, memory) • Limited number of radio stations to be measured, CATI interviews due to the recommended duration of the interview 	<ul style="list-style-type: none"> • High costs, less selections • Individual technologies (audio matching) do not differentiate radio stations which broadcast equal content concurrently • Individual technologies (watermarking) are restricted in their capacity to measure radio listening in case of intense surrounding noise

Source: Traubergs and Kronberga (2018)

impartially and in greater detail. It allows evaluating the place of small niche programs in the market, obtaining more precise and comprehensive data both about radio listening habits and place of radio in the media industry in general.

3. Commercial director of joint-stock company “Radio SWH” and board member of the Latvian Advertisement Association, Filips Rubenis, believes that change of the research method is a huge step forward, improving and developing radio audience research method. Rubenis points out that the new method proves that we as a medium have always been sure—radio listeners consume considerably more than we knew so far.
4. Program director of “Radio Skonto,” Valdis Melderis, in his turn, emphasizes that “the new method shows the reach more correctly. Specific weight of radio in the media consumption is larger than believed so far”.
5. Chairwoman of the board of Latvian Advertisement Association, Baiba Liepina, agrees that more accurate data on reach is achieved with the new research. Liepina comments that “results obtained can change the strategic decisions of advertisers about media groups and channels where the advertising spots should be bought.” Significantly, that the results of the new radio research reveal that when using the radio as an advertisement channel, one can reach a wider audience than it was believed according to the data of previous research. Adopting a decision in favor of the radio, the average reach of one radio station is not that

important. Total reach indicators, price per reached contact, and suitability of medium for the purpose of advertiser’s communication are what really matters. Under certain circumstances, there is a possibility that some strategic decisions could be changed regarding the choice of media channels.

4 A Substantial and “Sudden” Jump of Radio Ratings

Autumn radio rating researches in Latvia in 2017 were performed with the Diary method for period between August 15 and November 5, 2017, by surveying 2100 respondents. But already in Winter–Spring 2018 the research was performed with the DAR method between January 9, and May 31, 2018. 85% or 3847 respondents out of population of 4528 respondents were surveyed in telephone interviews and 15% or 681 respondents participated in the internet survey. The applied combined population method enables representation of results reflecting radio listening habits of 1.6 million of Latvian residents aged 16–74.

In order to properly analyze the general effect of radio rating increase, one needs to use Reach % indicator, which allows comparing results of obtained amount of listeners in the old and new research methods. Figure 2 reflects “increase” in the total

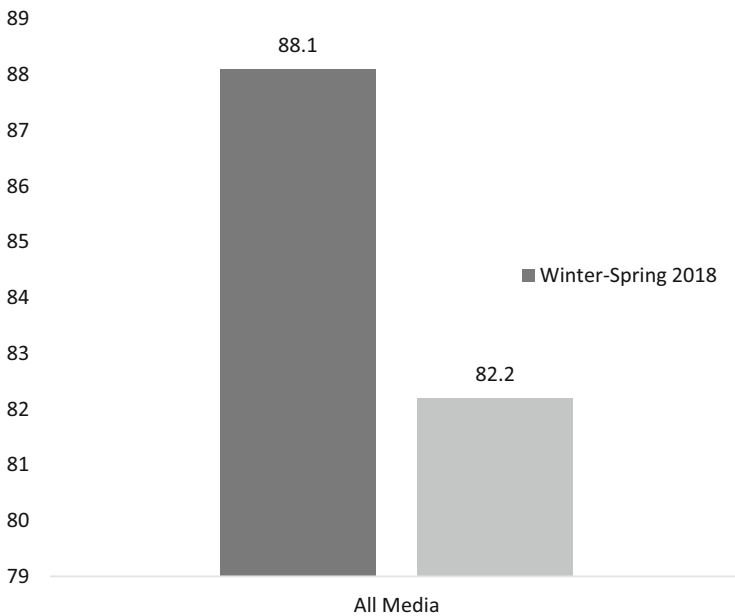


Fig. 2 Reach% increase from Diary to DAR radio research method for all radio industry in Latvia. (Source: Kantar TNS 2017, 2018, aggregated and calculated by the authors)

proportion of reach in the age group of 16–74, affected by change of radio rating research methodology from Diary to Day-After-Recall method (Kantar TNS 2017, 2018).

When analyzing data from Autumn 2017 and Winter–Spring 2018 radio research, where the first one was performed with the Diary method, but the last one with the DAR method, one can calculate that one radio station in Latvia in the age group of 16–74 reaches more than double the amount of audience on average than believed previously. Namely, if according to data from Autumn 2017 one station could reach 6.86% of the entire target audience in the age group of 16–74 on average, the newest research data reveal that one station reaches 14.91% of said audience on average. It means that the average number of radio listeners per week (Reach %) for one radio station in Latvia has increased by 117.34%. However, the weekly reach is 88.1% of Latvian residents aged 16–74, which accounts for 5.9% of increase against previous period in Autumn 2017. The said “phenomenon of increase” is shown in Fig. 3 (Kantar TNS 2017, 2018).

This increase may be reflected also separately for each station as a difference between the listeners’ proportion according to data of Autumn 2017 research and data of Spring 2018—Fig. 4. Out of all stations included in the research only one has a decrease in the reach. Average increase in Reach % of each station is 8.05%, but there are stations, the reach of which has increased by more than 10 and 20%. It indicates that the current research method, which has been evaluated as inaccurate by experts, has protractedly created a situation in the market where radio as a medium has been underestimated. Results of this research reassure the significant role of the radio in media market, especially in reaching (addressing) the audience. Radio industry in Latvia so far has been largely underestimated both by advertisers and in context of general Latvian media environment. This research must be a starting point of attitude change against the radio, because it clearly shows that radio is one of seldom media platforms, which reaches large portion of public quickly and efficiently thus serving the interests of advertisers and meeting the needs of the society for impartial and comprehensive information.

In order to evaluate whether the new research methodology influences also the changes in the audience profile, Table 3 sums up Reach % across diverse demographic groups.

Considerable changes are seen particularly in the income category. There is a significant increase in respondents with high individual income and decrease in the number of respondents failing to provide answer to this question. Other categories show no fundamental changes; therefore, it is important not to fix the findings, but to continue monitoring audience profile development trends also in further research periods.

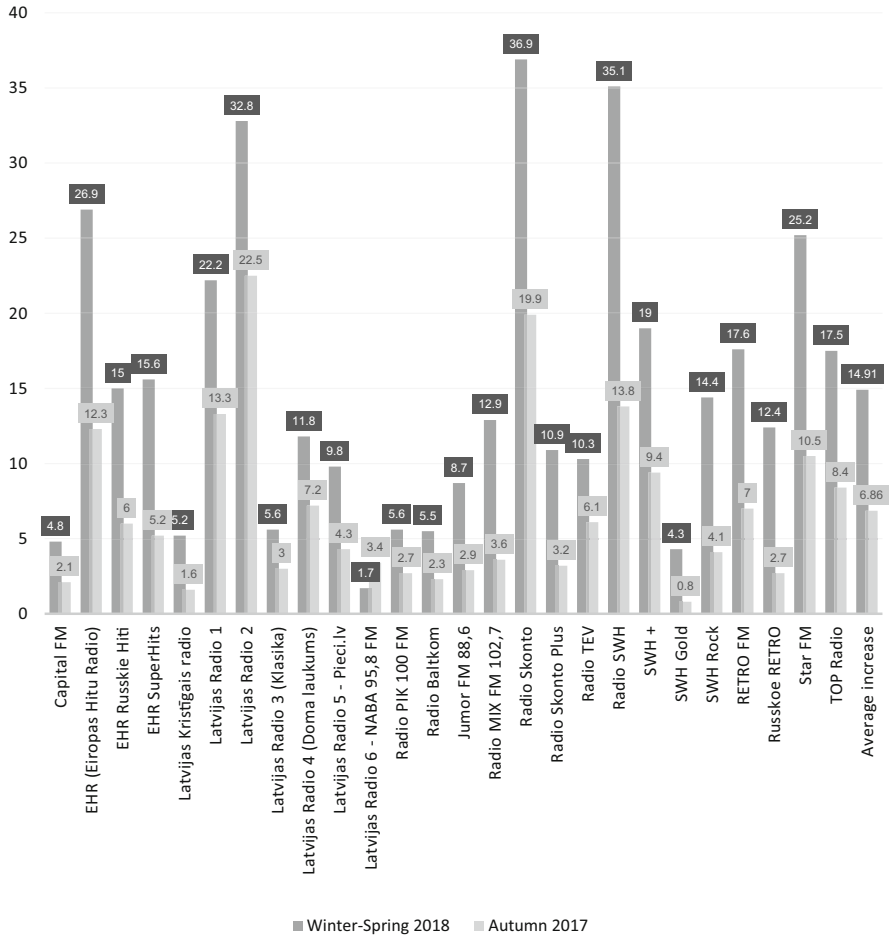


Fig. 3 Reach% increase from Diary to DAR radio research method for each station. (Source: Kantar TNS 2017, 2018, aggregated and calculated by the authors)

5 Conclusions and Recommendations

Main findings of the research suggest that:

1. There is a substantial difference between the new and the old rating methods implemented in Latvia—the average number of radio listeners per week (Reach %) for one radio station in Latvia has increased by 117.34%.
2. The impact of radio has been underestimated over years—the average increase in Reach% of each station is 8.05%, but there are stations, the reach of which has increased by more than 10 and 20%.

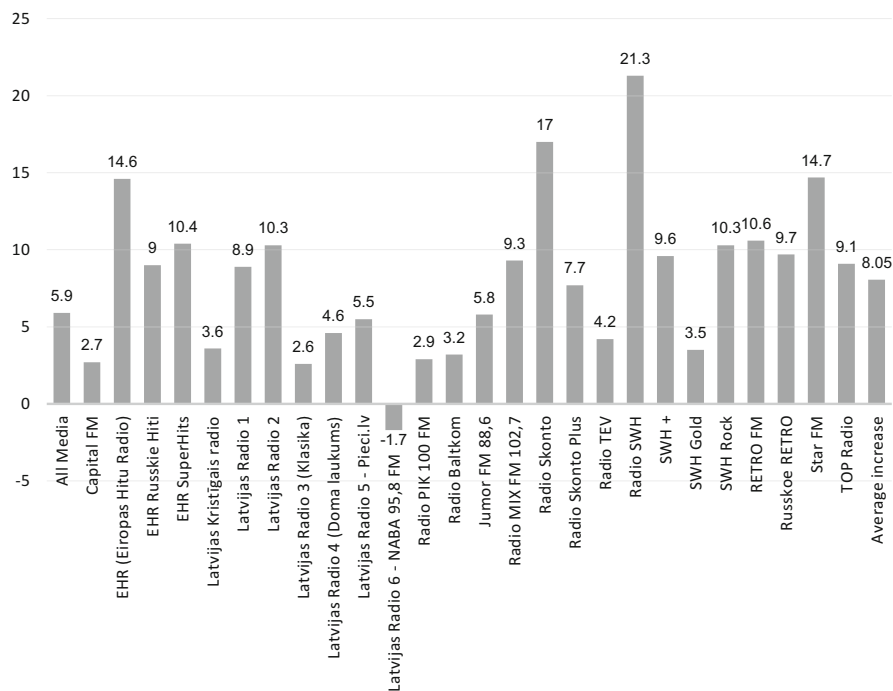


Fig. 4 Reach %-increase from Diary to DAR radio research method for each station. (Source: Kantar TNS 2017, 2018, aggregated and calculated by the authors)

3. There are huge gains of audience numbers in general, but major audience profile trends remain the same (Table 3);

These conclusions emphasize the crucial role of ratings in the elaboration of media strategy. Having performed research with inaccurate methodology for a long period, the entire radio industry has been subject to a great risk, discriminating the role of the radio as a medium in Latvian media market.

The chapter reveals the following recommendations:

1. Based on the research results, it is possible to considerably boost the significance of radio in commercial campaign plans and sustain the perception of radio as important media player in the market.
2. Radio professionals shall drive demand for radio advertising, which in its turn would allow the prices for radio products to go up resulting in higher income from advertisement on radio.
3. With higher income and increased radio role in media market, the radio industry will have wider possibilities to invest in the content quality.

Future researches will need an in-depth analysis of changes in audience profile, as well as follow-up if the demand for radio advertising activities increases as expected, and to evaluate and analyze changes in trends of media strategies and reasons affecting them.

Table 3 Difference in audience profile with different research methods

		Research data		Difference (%)
		Autumn 2017 (%)	Winter–Spring 2018 (%)	
Total				
Gender	male	48	49	1
	female	52	51	–1
Individual income (EUR)	no income	13	6	–7
	less than 150 EUR	9	7	–2
	151–250 EUR	9	7	–2
	251–350 EUR	9	11	2
	351–550 EUR	16	18	2
	more than 550 EUR	19	35	16
	hard to say / NA	25	16	–9
Education	basic	16	11	–5
	secondary	53	53	1
	higher	31	36	5
Age group	16–24	11	11	0
	25–34	21	21	0
	35–44	19	20	1
	45–54	19	19	0
	55–64	16	18	2
	65–74	11	11	0

Source: Kantar TNS (2017, 2018), aggregated and calculated by the authors

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Inclination to Help Other Customers— Insights from Explorative Study Among Young Population in China



Anna Dewalska-Opitek

Abstract Customer citizenship behavior (CCB) is an important trend observed in the contemporary market. It may be described as an extra-role, voluntary behavior performed in favor of other customers or companies. One of the CCB dimensions is helping other customers. Our knowledge about factors determining this behavior is relatively weak. Trying to fill the gap, this chapter discusses inclination to help other customers among the young population in China, both on the basis of literature review and explorative research conducted in 2018 on a sample of 114 Chinese respondents. The study proposes a 3-item measure of a latent variable explaining the intention to engage in helping behavior of the young Chinese population, and it illustrates empirically that this measure is distinct to some other measures of consumer behavior, namely consumer innovativeness and consumer needs fulfillment. The cultural background of the study is discussed, conclusions are drawn, and possible limitations and future research areas are indicated.

Keywords Helping others · customer citizenship behavior · China

1 Introduction

Literature review, as well as market observation, allows us to identify fundamental phenomena determining contemporary business. Firstly, the importance of company relationships may be noticed, especially in terms of business-to-customer (B2C) relationships. It is reflected in the concept of relationship marketing based on satisfactory partnership relations among business entities, enhanced by customer engagement (Mitręga 2006). Secondly, the evolution of business to customers relationship may be observed, moving over from reactive behavior, i.e., required,

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expected in-role customers' behavior as a (positive or negative) reaction to marketing activities performed by enterprises, towards proactive one, i.e., customers' voluntary, discretionary extra-role behavior, also known as customer citizenship behavior (CCB) (Groth 2005). Finally, the extra-role behavior (CCB) brings benefits directly to other customers, but indirectly to companies as well. Customers sharing their opinions with others in the form of positive word of mouth, displaying their affiliation toward specific products, brands, or companies or helping other customers undertake non-obligatory actions delivering value to the company. In turn, these customers are being treated as value co-creators. CCB is presented in the literature rather as a complex set of many different activities, undertaken both online and offline. The literature identifies several factors as drivers of CCB; however, there is little knowledge about the mechanisms that encourage consumers to engage in CCB, especially on empirical level.

This chapter may enrich our understanding of customer extra-role behavior in the form of CCB. It also presents a synthesis customer citizenship behavior in general and helping others as one of its dimensions suggests what marketing theories may explain the inclination for this particular behavior provided by customers.

The chapter also addresses the gap identified in the literature by presenting the results of empirical study conducted in China among young people who have recently engaged in helping other customers as a specific form of CCB. The research was explorative in nature and conducted among 114 Chinese consumers, mostly students. The study focuses especially on some consumer attributes that are hypothesized as drivers of CCB. The theoretic presentation of potential drivers for helping other customers is referred to the behavioral patterns of young Chinese customers and followed by a practical verification of their inclination to help others. Except for research results, the chapter presents conclusions, points at some limitations, and indicates the potential future research areas.

2 Helping Other Customers as a Form of Customer Citizenship Behaviors

Recently, there has been a focus on customer behavior in management and marketing literature (Bettencourt 1997, Groth 2005, Yi et al. 2013, Aggarwal 2014). Prior studies allow to recognize the role of customers who engage in a variety of positive, discretionary behavior directed toward companies and other customers (Yi and Gong 2006). Various terms have been used to describe this behavior, including customer voluntary behavior (Bettencourt 1997, Rosenbaum and Messiah 2007, Balaj 2014), co-production (Gruen et al. 2000), customer extra-role behavior (Keh and Teo 2001), or customer citizenship behavior (Gruen 1995, Groth 2005, Bove et al. 2009), which is a subject matter of general interest presented in the chapter.

Customer citizenship behavior (CCB) may be defined as “*voluntary and discretionary behavior of individual customers that is not directly or explicitly expected or*

rewarded but leads to higher quality service and promotes the effective functioning of organizations” (Groth 2005, p. 13). Bove et al. (2009, p. 698) describe it as *“discretionary and pro-social actions displayed by customers, that bring benefits both to the companies and other customers.”* Citizenship behaviors are extra-role initiatives performed by customers. Such helpful behaviors are not expected or required; they stand beyond the requirements of the customer usual roles. Hsieh et al. (2004) define them as customer voluntary performance (CVP), while Fowler (2013) points at similarities to civic citizenship behavior, involving information exchange and opinion sharing among individuals that enhance self-governance and the development of people’s social autonomy. Concluding, CCB may be perceived as a voluntary, discretionary behavior, initiated by customers, who wish to support a company or other purchasers. CCB is not formally rewarded by companies in the form of a benefit system or formal reward programs but may be noticed and appreciated by enterprises (Dewalska-Opitek and Wiechoczek 2017). CCB is not a homogeneous construct. It consists of several distinct activities. Literature studies (Keh and Teo 2001; Groth 2005; Bove et al. 2009) allowed identifying five main dimensions of CCB, which are presented in Table 1.

A specific activity undertaken by customers within general CCB framework is *“helping others.”* Aggarwal (2014) claims that this activity closely parallels the altruism dimension found in organizational citizenship behavior. Customers share their knowledge and experiences, play the roles of advisors toward other customers providing them with useful information, support their market behavior or purchasing choices, help customers in finding a suitable product or service, explaining them how to use product or service correctly, etc.

Many examples of helping other customers may be found online via blogs, vlogs, and on YouTube channel. Customers post videos and tutorials addressed to other viewers. Another example of helping other customers may be a website of WD-40 Company, famous for its flag product: a penetrating oil and water-displacing spray named WD-40. Product users may share their experience with others and suggest its usage not mentioned on the official website, sometimes unusual and atypical.

Sometimes customers actively participate in a product co-creation, playing a double role of end users and providers simultaneously. As an example of such activity Waze may be pointed at. Waze is a GPS navigation software providing real-time route details. The idea of the app is to share useful information by drivers (often referred to as *“Wazers”*) about road situation, like traffic congestion, road works, any road obstacles, collisions and accidents, etc. Waze, with over 100 million active road users, may be described as a *“community-driven”* app that is constantly updated due to the drivers’ voluntary participation.

It should be noticed that helping others requires customer engagement or may even require a sacrifice on customers’ part (such as time and effort) and is described by researchers as commitment or supportive behavior (Wing Sung Tung et al. 2017). As the behavior is discretionary and initiated by customers, specific motives should stand behind it. It seems interesting to explore what determinants of helping other customers may be. An in-depth analysis into the subject of helping other customers

Table 1 Five dimensions of customer citizenship behavior

No.	CCB dimensions	Description	Author/s
1	<i>Providing feedback, voice, consultancy</i>	Providing information and (positive or negative) opinions on companies, their goods and services, with the intention of improving the marketing activity	Groth (2005) Soch and Aggarwal (2013) Balaji (2014)
2	<i>Advocacy</i>	Encouraging other customers (friends, family members, Internet users, etc.) to use a company's goods or services, positive WOM, and recommendations	Gruen (1995) Groth (2005) Garma and Bove (2009)
3	<i>Displaying affiliation, social support</i>	Presenting commitment to a company, a favorable attitude toward its products, services, and marketing activity by presenting a company's logotype (on clothes, bags, etc.), presenting involvement in marketing events provided by a company	Groth (2005) Garma and Bove (2009) Soch and Aggarwal (2013)
4	<i>Helping other customers</i>	Supporting other customers when product usage or company's proceedings may be troublesome and uneasy for other customers, benevolent acts of service facilitation toward other customers	Groth (2005) Johnson and Rapp (2010) Soch and Aggarwal (2013)
5	<i>Mitigating, policing</i>	Observing other customers to eliminate their inappropriate behavior, e.g., not respecting the queue, misbehaving on company's fun page, being rude to other customers	Gruen (1995) Bettencourt (1997) Soch and Aggarwal (2013)

Source: Own elaboration (Dewalska-Opitek and Wiechoczek 2017) based on: Soch and Aggarwal (2013); Garma and Bove (2009); Balaji (2014); Bettencourt (1997); Groth (2005); Johnson and Rapp (2010); Gruen (1995); Bettencourt (1997)

as a CCB dimension allows for considering related concepts and theories relevant to the subject matter.

According to Fowler (2013), a possible explanation of such behavior may be provided by the theory of motivation, with special regard to extrinsic and intrinsic motivations. The extrinsic motivation means doing something because it leads to a separable outcome, for instance may be appreciated and rewarded by a reference group of customers (Kotler 1994; Ryan and Deci 2000), while the intrinsic motivation refers to doing something because it is inherently interesting, enjoyable, or in accordance with customer's values or attitudes. Elster (2006) pointed at altruism motivation. Studies on human altruistic behaviors have shown that helping others can make the helper feel happy and satisfied. Once people do a good thing, they will do more to obtain inner happiness.

As far as the theory of motivation is concerned to explain customer citizenship behavior, Abraham Maslow hierarchy of needs may be useful. Gambrel and Cianci

(2003) state that Maslow's hierarchy of needs is the most referred to and discussed motivation theory. Maslow's theory posits that an individual will satisfy basic-level needs before modifying behavior to higher level needs, i.e., physiological, safety and security, belonging (social needs), self-esteem, self-actualization, and transcendent needs (Urwiler and Frolick 2008), s. 83-84]. This approach to the theory of needs gained both its adherents (Urwiler and Frolick 2008, Rosenbaum and Messiah 2007, Koltko-Rivera 2006, Coy and Kovacs-Long 2005) and opponents (Yang 2003, Wahba and Bridwell 1976, Payne 1970, Alderfer 1969). Some researchers created an interesting concept, according to which it is possible to aggregate all the needs into three main categories, i.e., basic needs, social needs, and altruistic needs (Cao et al. 2013, Radic 2011). Customer citizenship behavior may be driven by higher level needs, i.e., social and altruistic ones.

Helping others as a voluntary activity may also be explained by the theory of social exchange in general and especially the principle of reciprocity. The core tenants of this framework are voluntary actions of an unspecified nature that extend beyond basic role obligations and suggest a personal commitment to others (Blau 1964, Patterson and Smith 2003). Customers help others, and they expect the same in the future. Even though the help may come from different customers, they will also benefit from citizenship behavior (Falk and Fischbacher 2006).

Another theory that explains customer reasons for helping other customers as voluntary behavior that provides extra value to others is the economy of gift and open collaboration communities. The concept of gift economy refers to the idea of giving goods rather than trading or selling them, even though there is no explicit agreement of immediate or future rewards (Cheal 1988). Due to the fact that exchanging voluntary extra-role behaviors with other customers may be determined by social and cultural contexts (Bearden et al. 1989, Hoffman and Broekhuizen 2009), country-specific character of the way in which other customers are helped shall be focused on. In this chapter, the author is mainly interested in how the young population in China help other customers.

3 Behavioral Patterns of Young Population in China

The contemporary China is a conglomerate of contrary features, consisting of state-owned and market economy, traditional values dating from ancient philosophy and religion, as well as modern lifestyles and behaviors. Chinese society has changed profoundly in many ways in recent decades. During the twentieth century, China tended to absorb cultural norms from around the world. To some extent, this trend is being reversed and China is beginning to project out cultural influence (or "soft power") (Mitter 2008).

Today, the Republic of China is the biggest country in the world in terms of population. According to National Bureau of Statistics of China (2017), it reached 1,36 billion inhabitants in 2013, and the number is predicted to raise up to 1,42 in 2018. The country has been facing the negative effect of "one-child policy"

introduced in 1978. The rationale for implementing the policy was to reduce the growth rate of China's enormous population. Nonetheless, the policy produced several consequences. One of them is the country's overall sex ratio became skewed toward males (Vermeer 2006). Another one would be "graying" (aging) of the society. A growing proportion of elderly people may be observed. It is the result of the contemporaneous drop in children born and rise in longevity since 1980. The problem proved to be serious as a significant number of Chinese senior citizens needed support from their children after they had retired, whereas there were not enough children who could provide such support. The program ended in 2016, allowing families to have more children.

According to Index Mundi (2018), the number of young inhabitants (up to 25 years old) in 2017 stood at 29,93% of the Chinese population, 12% out of which were aged 15–25 years. This group may be referred to as the "Z" generation or "post-Millennials." The Generation Z born in 1995 or later (Bassiouni and Hackley 2014) is educated, innovative and creative, and technologically savvy (Priporas et al. 2017). They are people living online, who virtually integrate and engage with its favorite brands and ideas as the digital world is what they were born into. It is also referred to as a heavy user of technology constantly connected to global information, 24/7 news cycles, and videos on demand (VOD) (Bernstein 2015). The young generation is rather collaborative, willing to share information, but also obtain it online (via social media, blogs, etc.). Their attitude to knowledge is different from other generations—they acquire it from the Internet. The speed of finding information and creative approach to ways of reaching the information is important (Van den Bergh and Behrer 2016).

The aggregate description of Generation Z suits the young Chinese population even better. First, Chinese are world's pioneers in terms of Internet usage. According to National Bureau of Statistics of China (2017), the number of Internet users in 2017 reached 772.0 million, which indicates an increase of 40.7 million new users in comparison to 2016. It is the largest single Internet market in the world and represents 57.7% of China's population. It is expected that emerging technologies like face or voice recognition, mobile payments, etc. could play a vital role in bringing the Internet to the rest of the population. The China Internet Network and Information Centre (CNNIC) points at two obstacles stopping Chinese population from accessing the Internet: computer illiteracy and the inability to type in Pinyin (the Romanized version of Chinese). These barriers mainly concern the elder generations.

As far as Generation Z is concerned, the Internet penetration among the young population reached 89% in 2017. Young Chinese customers are very innovative. According to Pricewaterhouse Coopers (PwC 2016), young Chinese population behavior is a leading indicator for global customers' behaviors. In other words, what Chinese consumers are doing today, the rest of the world will be doing in the not-too-distant future. One of the noticeable trends was using Internet via mobile devices in general and mobile phones in particular. It was reported that before the end of 2017, 97.5%, i.e., 752.7 million, Internet users in China went online via their mobile devices. In the previous year, the rate reached 95.1%. Other devices were

used much less frequently. As CNNIC data shows, only a half (53%) of Internet users went online via desktop, whereas 35.8% used laptops and 27.1% used tablets. 65% of young Chinese customers shop online via their mobiles monthly and 19.6% daily (in comparison to 28% of global young customers shopping online monthly and 7.1% daily). It may be stated that when it comes to adopting mobiles, global youth are three years behind the Chinese (PwC 2016).

Young customers in China are online for a growing amount of time. Studies show that in 2017 they spent on the Internet on average 27 hours per week, which represented an increase of 36 minutes in comparison with the previous year and the fastest growth in three years. This was mainly caused by e-payments, video on demand, live streaming, social networks, and online shopping. Other online activities included constant messaging, blogging, searching for information, mailing, and investing online (CNNIC). According to China Internet Watch (2018), young customers are very social; they use social media for most of the abovementioned online activities. What needs to be stated, worldwide social networks (like Facebook, Instagram, Messenger, WhatsApp, YouTube, etc.) were banned by the government and declared illegal; nevertheless, the Chinese population has national ones. The most popular are WeChat (1 billion users), QQ (683 million users), QZone (554 million users), Weibo (392 million users), and Momo (99,1 million users). Chinese companies often use social networks to establish strong relationships. Xiaomi, a Chinese company which is the fourth largest smart phone manufacturer globally, sold 70% of its products online directly to customer while bypassing telecom carriers as intermediaries. They achieved this through development of engagement on social platforms among a core group of users (referred to as “Mi-fans”). Social engagement strategies applied by Xiaomi included contests, exclusive events, and flash sales through which new product releases became online shopping festivals (PwC 2016).

Being social and presenting social engagement is also a part of Chinese culture. Traditionally, it is mainly equated with Confucianism, the dominating philosophy putting emphasis on collectivism, which means that the interest of the collective must not be challenged by lesser groups and individuals (Zhou 2006). Collectivism is one of the cultural characteristics described by Hofstede (1984). After having analyzed the data from more than 40 countries, he proposed that people carry “mental programs” that contain a component of national culture. Hofstede (1984) also concluded that these mental programs denoted the existence of four underlying value dimensions along which the countries could be positioned into culture areas. These four dimensions are:

1. Individualism and collectivism—this dimension describes the social attitude toward individual or collective achievement.
2. Masculinity and femininity, reinforcing various gender features, i.e., rivalry and competition versus care and concern toward society members.
3. Power distance, meaning the degree of equality or inequality between people in the society.

4. Uncertainty avoidance, i.e., the extent to which members of a society are eager to take risk, accept changes, or avoid future uncertainty or equivocal situations.

According to Pheng and Yuquan (2002), the abovementioned dimensions provide an important framework not only for analyzing national culture but also for considering the effects of cultural differences on activities, roles, and relationships of members of a society.

Studies carried out by Hofstede (1984) indicate that Chinese culture may be described as a collective and masculine one, with a high-power distance and relatively low uncertainty avoidance. The in-depth analysis presents an interesting picture of Chinese society. Research studies conducted by Pheng and Yuquan (2002), as well as Yoon (2009), enabled to reaffirm the Hofstede's results.

The individualism (IDV) dimension for China was scored at just 15. The Asian average is 24, while in the Western part of the world it is much higher. By comparison, the US score for IDV was 91. Low IDV score indicates collective society with close and committed member groups like families, work teams, etc. Loyalty is highly appreciated and enjoyed by Chinese society members, and strong relationships are important to most Chinese people and businesses.

The masculinity (MAS) dimension for China was scored 50. A high ranking indicates that the country experiences a high degree of gender-based differentiation with a focus on collective achievements, which is reflected in social and economic engagements. In terms of power distance index (PDI) China had a score of 80. This shows a high inequality between people in terms of power and wealth. Inequalities are accepted by the society as the cultural heritage. The uncertainty avoidance index (UAI) for China was scored at 32. Low index usually indicates liberal society, with greater level of tolerance for a variety of ideas, thoughts, and beliefs. Nonetheless, this score may be deceiving. Legal consequences for not obeying the law are not perceived as that harmful as possible public disgrace, repudiation, and "losing face."

In addition to the original four cultural dimensions, Hofstede (1990) proposed the fifth cultural dimension, called Confucian Work Dynamic. It was identified by Michael Bond on the basis of a Chinese Value Survey conducted in 22 countries in 1987. There were four items included in the new cultural dimension, i.e., (1) ordering relationship), (2) thrift, (3) persistence, and (4) having a sense of shame. They were the representation of Confucian values in the Chinese society. This Eastern cultural dimension was adopted by Hofstede (1990) in his later work as the fifth-work-related cultural dimension (Hofstede 2001), where it was renamed to long-term orientation (LTO) (Wu 2006). Societies with a high degree in this index (long-term) appreciate adaptation and circumstantial, pragmatic problem-solving; they also order relationships by status. A low degree (short-term) culture puts attention to reciprocation of favors and gifts; they also honor traditions and value steadfastness of society members (Minkov and Hofstede 2012). Taking the fifth dimension into consideration, it may be stated that an important part of Chinese culture is reciprocity—people are eager to reward kind actions; they evaluate the kindness of an action not only by the consequences but also by its underlying intention (Falk and Fishbacher 2006). This framework is especially useful for understanding customers' intention to

exchange voluntary extra-role behaviors with other customers, as well as the determinants that are considered appropriate in helping others.

4 Research Method

The purpose of this study was to identify correlates with the inclination of young Chinese customers to help others, as a specific form of CCB. The research was in the form of a survey conducted in June and July 2018. It was performed to describe the nature of the problem and its aim was to ensure a better understanding of the problem rather than provide conclusive evidence (Henson and Roberts 2006). Data collection was accomplished through a survey among university students in China. The assumption of the sample selection was to find students with a good command of English language and those who declared they had helped other customers within the previous 6 months. Sampling procedures were based on snowball sampling (nonrandom technique). In total, 114 valid questionnaires were used in the analysis. 81 of the respondents were male and 33 females, aged 20–22. Asked to describe their economic status in comparison to other people at the same age, respondents evaluated it as similar or the same (67%) and rather better (19.1%). 7% of respondents declared that their economic status was definitely better and also 7% evaluated it as worse (5.2% rather worse and 1.7% definitely worse). Respondents were also asked how often they used Internet. 68.8% declared the Internet usage several times a day and 18.1% about once a day. Table 2 presents the detailed information about survey respondents.

Some concern may arise about the homogeneous background caused by gathering data from university students. Nevertheless, it decreased the bias causing sample inequivalence in terms of age, educational experience, cultural differences, etc. The questionnaire used as a research tool for data collection contained scales to measure the inclination to help other customers and its determinants. For the dependent variables (helping other customers), we adopted scales from studies by Soch and Aggarwal (2013), Groth (2005), and Johnson and Rapp (2010), while for independent variables scales were adopted from studies by Kim et al. (2002), Cook and Wall (1980), Goldsmith and Hofacker (1991), and Gosling et al. (2003). All constructs were measured with multi-item reflective measurement models using 5-point Likert scales ranging from (1) “strongly disagree” to (5) “strongly agree.” Some adaptation was also used when respondents were asked about the frequency of an activity, ranging from (1) “I definitely did not perform”/ “I will definitely not perform” to (5) “I definitely performed”/ “I will definitely perform.” To reduce the measurement error and not to bias the results, neutral wording was used, as well as the assurance of respondent anonymity and data confidentiality (Mitręga and Pfajfar 2015).

Table 2 Profile of survey respondents

Specification	Sample (in %)
1. Gender	
a. Male	71.3
b. Female	28.7
2. Age	
a. 20 years	18.2
b. 21 years	13.0
c. 22 years	68.8
3. Material status in comparison to other people at the same age	
a. Definitely worse	1.7
b. Rather worse	5.2
c. Similar or the same	67.0
d. Rather better	19.1
e. Definitely better	7.0
4. Frequency of internet usage	
a. Never, hardly ever	9.6
b. Not more often than once a month	2.6
c. Several times a week	0.9
d. About once a day	18.1
e. Several times a day	68.8

Source: Own study

5 Research Findings

Respondents were asked whether they had helped other customers within the previous six months. It was a filter question used for sampling. 114 survey participants declared they had and they were asked to indicate which specific activities were performed within helping other customers, i.e., “Sharing information with other clients on a company’s services, products and the ways they may be used, etc.,” “Helping other customers with finding a product in a shop/ on a shelf,” or “Helping others customers in their online activities—finding a website or necessary information of a company’s website.” The researched students were asked to indicate their answers on the 5-point scale. The obtained results are presented in Table 3 in the form of a semantic profile.

Requested to evaluate to what extent sharing information with others had been performed, the respondents graded it as “*I rather performed*” or “*I definitely performed*” (34 and 39 students, respectively). The weighted average of responses allowed for qualifying this evaluation as “*I rather performed*” scored 3.6. What is interesting, 82 survey participants declared they had “*definitely performed*” helping other customers with finding a product in a shop, on a shelf—the weighted averaged of the offline activity was scored 4.5. As far as helping other customers in their online activity, i.e., finding a website or necessary information, etc. was concerned, 34 respondents declared they had “*rather performed*” and 46 had “*definitely*

Table 3 Semantic profile of respondents’ performed activity concerning helping other customers in the past

Activity	I definitely did not perform	I rather did not perform	I do not know	I rather performed	I definitely performed
	1	2	3	4	5
a. Sharing information with other clients on a company’s services, products and the ways they may be used, etc.			(3.6)		
b. Helping other customers with finding a product in a shop/ on a shelf					(4.5)
c. Helping other customers in their online activities – finding a website or necessary information of a company’s website				(4.0)	

Source: Own study

performed” this activity. It allows us to score the weighted average at 4.0. The researched students were asked if they had experienced any gratitude for their helping performance, and if yes, what kind of gratitude it was. This was an open question, so the respondents were free to express themselves and give examples. Some of them declared having experienced gratitude from other customers. The most common expression was “a handshake,” “a smile,” or “saying thank you.” Respondents’ helping behavior toward other customers was also appreciated by companies—most of the time it offered gifts (“some gifts,” “a tiny gift” or a “small gift,” “a present”) or bonuses (like “special offer,” “a discount,” “some amount of money return”). One respondent declared having received “a company’s product—the latest version of a game—for having solved a problem with an online game.” The company also expressed its gratitude to the respondent on the official website.

We also asked the respondents about their intention to perform helping behavior in future, and if so, which of the activities they are planning to implement. The obtained results are presented in Table 4 in the form of a semantic profile.

Researched students declared they “would rather” help other customers with finding a product in a shop/on a shelf as well as with online activities, i.e., finding a website or necessary information. The weighted average was scored 4.4 and 4.0, respectively. As far as sharing information is concerned, the students are less certain about performing it in future (the weighted average scored 3.4). Comparing the students’ intention to perform specific helping behavior in future with the declared one concerning past actions, we may notice significant similarities. It allows drawing a conclusion that being experienced in helping other customers, and having experienced gratitude from other customers and companies, may influence the intention to help others in future.

Exploratory factor analysis (EFA) was performed with the use of SPSS program to identify key drivers for helping behavior. A three-factor solution was indicated by the Scree Plot (Fig. 1). The Varimax results of EFA for previously identified items used for the latent constructs. In general, all items loaded on the expected constructs

Table 4 Semantic profile of respondents' intended activity concerning helping other customers in future

Activity	I will definitely not perform	I will rather not perform	I do not know	I will rather perform	I will definitely perform
	1	2	3	4	5
a. Sharing information with other clients on a company's services, products and the ways they may be used, etc.			(3.4)		
b. Helping other customers with finding a product in a shop/ on a shelf				(4.4)	
c. Helping other customers in their online activities – finding a website or necessary information of a company's website				(4.0)	

Source: Own study

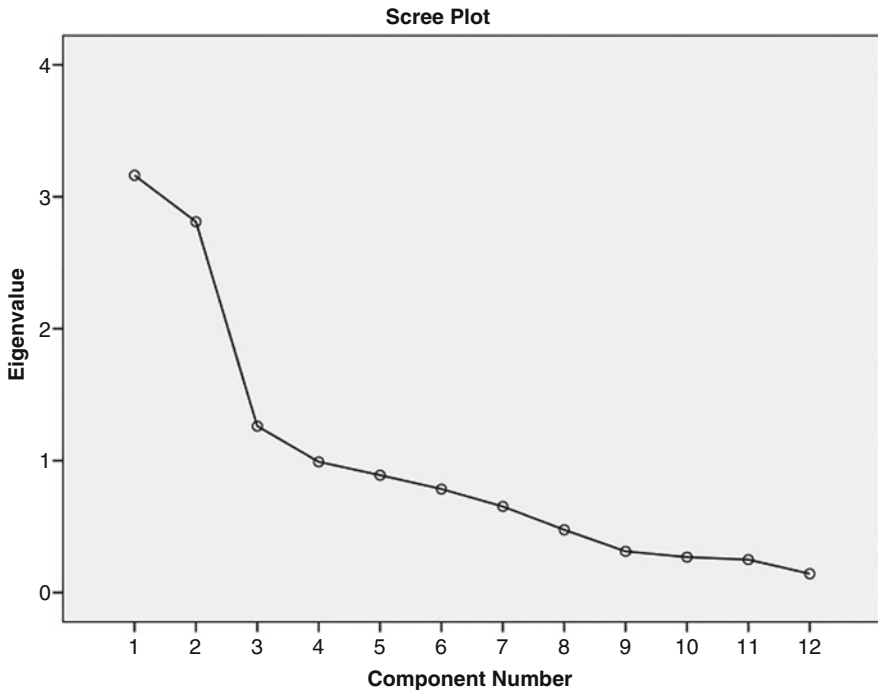


Fig. 1 Scree Plot indicating the number of components for inclination to help other customers. Source: Own survey results processed in SPSS package

and they had factor loadings higher than 0.6 with no cross loadings. The Varimax results are presented in Table 5.(Dewalska-Opitek 2019, p. 429).

The rotated component matrix allows us to indicate 3 main constructs determining the inclination of young Chinese customers to help others. The first one refers to

Table 5 Rotated component matrix

	Component		
	1	2	3
Will share information with other clients			0.736
Will help other customers in a shop			0.709
Will help online			0.712
Always buys the latest models available in the market	0.825		
Willing to buy the latest technology	0.792		
Knows brand names and the latest products offered in the market	0.842		
Usually identifies the latest products faster than others	0.832		
Acceptation		0.758	
Notification		0.628	
Respect		0.754	
Selflessness		0.750	
A good person		0.779	

Source: Own survey results processed in SPSS package

Table 6 Convergent validity for 3-item construct

	Composite Reliability (CR)	Average Variance Extracted (AVE)
CUSTOMER_INNOVATION	0.8935	0.677269
NEEDS	0.8544	0.676701
HELPING_INCLINATION	0.7625	0.511710

Source: Own study

innovative attitude of young customers (CUSTOMER_INNOVATION) and covers buying the latest models of goods available in the market and the latest technology, identifying the latest products faster than others and their brands. The second construct (NEEDS) refers to some of the customers’ needs identified and described by Maslow, i.e., social needs (helping others to be accepted by others, to be noticed by others, or to be shown respect by others), and altruistic, transcendent (cognitive) needs (helping others gratuitously, to be a good person). The third construct is the willingness to perform helping behavior in future (HELPING_INCLINATION), consisting of sharing information with other clients, helping them offline and online.

Following Hair et al. (2006), as well as Mitreęa and Pfajfar (2015), convergent validity was tested to determine whether the “indicators of a specific construct should coverage or share a high proportion of variance in common.” Convergent validity was assessed with average variance extracted (AVE) and composite reliability (CR) according to the following criteria: AVE>0.5 and SCR>0.6. The results of convergent validity are shown in Table 6.

The criteria were met in the case of all measured constructs. Taking this into consideration, as well as the results of conducted analysis, it may be assumed that measures of latent variables were valid and reliable in the case of all three constructs: CUSTOMER_INNOVATION, NEEDS, and HELPING_INCLINATION, which

allows testing relationships between these constructs in future studies, using other analytical methods (Dewalska-Opitek 2019).

6 Discussion and Conclusions

Summarizing the theoretical deliberation presented in the chapter, CCB may be perceived as a significant trend in customer behavior. The multidimensional construct, which helps other customers, comprises several dimensions. Several theories describe what may constitute the key determinants of discretionary and voluntary behavior. Helping behaviors toward others that are typical of young Chinese population have not been analyzed by researchers before, and therefore the chapter fills the gap to some extent.

Research data gathered from a sample of Chinese young customers and analyzed on the basis of exploratory factor analysis allowed extracting a 3-item construct of key drivers for helping behavior, i.e., customer innovation (i.e., the extent to which customers accept and adapt innovative products and ideas from the market), social and altruistic needs they want to be satisfied (i.e., helping others to be accepted by others, to be noticed by others, or to be shown respect by others, helping others gratuitously, to be a good person), and helping inclination as a tendency to engage in helping behavior in future).

One interesting finding is worth drawing attention to is the collaborative aspect of Chinese culture with a strong reciprocity activity. The researched young population declared they had often experienced gratitude from other customers and companies in return for their helping behavior. This topic shall be a subject matter of further in-depth analysis. The chapter focuses on findings that might prove interesting for researchers as well as practitioners. However, some limitations need to be indicated. Firstly, performance of research on a larger and more differentiated sample would be advisable. Although a research assumption was made to focus on a homogeneous sample not to bias the results, survey conducted among respondents of different age, material status, and education level, coming from various societal environments, and having different life experiences, may allow identifying new drivers for helping behaviors. Secondly, this single-country study raises some concerns about the generalizability of the findings. It would be interesting to make comparisons among countries and cultures. Thirdly, the data analysis method may be extended. This leaves place for a future study.

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Companies Image Evaluation Using Social Media and Sentiment Analysis



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Abstract While the literature contains many slightly different definitions for the image of a company, they all put great emphasis on its importance. Many of the messages posted on social media networks nowadays contain strong sentiment and emotion indications regarding almost any topic, therefore turning them into a rich and almost real-time data source for analyzing the public's opinion on various subjects, including many of the factors that can influence the image of companies. Thus, in this chapter we propose a natural language processing (NLP) approach for monitoring and evaluating the companies' image by extracting information from social media messages posted on Twitter. The messages are analyzed using a bag-of-words sentiment analysis approach. The results of the analysis are stored as semantically structured data, thus making it possible to fully exploit the possibilities offered by semantic web technologies, such as inference and accessing the vast amount of knowledge in Linked Open Data, for further analysis.

Keywords Company Image · Social Media Analysis · Sentiment Analysis · Semantic Web · Ontology

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1 Introduction

Accurately understanding the way in which customers perceive the image of a company has long been considered a key element for its success (Delcea et al. 2015). However, constantly monitoring the factors that could positively or negatively influence the company image has been a daunting task, due to both their number and the difficulty in collecting up-to-date information. Analyzing the image of the company has been performed for example by employing user surveys, which are both time and effort consuming, while many times failing to capture a comprehensive overview of the company image, due to the limited number of respondents.

The usage of social media networks has been constantly increasing in the last few years. Among them, one of the most popular networks is Twitter, which allows users to post messages with a maximum length of 280 characters. Many of the messages published on this social media network, also known as tweets, contain sentiment indications regarding companies and their products and services (Pak and Paroubek 2010; Kontopoulos et al. 2013). Thus, by analyzing the messages posted on social media, it becomes possible to know the opinion of a huge number of actual or potential customers in near real time. Understanding the perception expressed in social media messages requires sentiment analysis, a growing area of natural language processing (NLP) that involves a multidisciplinary approach, combining elements from fields such as artificial intelligence, psychology, and linguistics. Sentiment analysis has been used in order to determine whether a text expresses a positive, negative, or neutral polarity in a variety of tasks including analyzing customer reviews (Liu and Zhang 2012), stock market prediction (Khadjeh Nassirtoussi et al. 2014), and predicting the results of political elections (Rill et al. 2014).

Besides accurately determining the polarity of the tweets mentioning the company, an equally important aspect is represented by the manner in which the analyzed tweets, together with the associated sentiment score and the detected company image facets, are stored in order to enable advanced analysis. Thus, in this chapter, we propose a novel semantic web-based approach. Compared to existing approaches in the scientific literature, the collected data can easily be explored using SPARQL (SPARQL protocol and RDF query language) queries and new knowledge can be uncovered using semantic web inference.

The chapter is organized as follows. The second section focuses on the concept of company image and its relationship with the company reputation. The third section presents the semantic web ontologies that will be used during the social media analysis process. The fourth section of the chapter includes the steps taken in order to analyze the opinions of the social media users. The last section summarizes the chapter and introduces possible future research directions.

2 Company Image

The company image is defined as the outside world's overall impression regarding the company, including the perception of the customers, media, and the general public (Jo Hatch and Schultz 2003). It is distinct from the concept of company

reputation, which also takes into consideration how partners, employees, communities, and regulators perceive the business (Lloyd 2007). Thus, while the company reputation is influenced by factors such as financial stability, the company image encompasses factors such as brand recognition and customer emotional appeal (de Leaniz and del Bosque Rodríguez 2016).

Various approaches for better understanding the customers' perception upon the company image have been proposed in the literature, ranging from traditional marketing studies, such as surveys (Mohtasham et al. 2017), to novel agent-based modeling approaches, such as the ones described in Delcea et al. (2018a, b, c, d). In this chapter, the image of the company is analyzed using sentiment analysis and semantic web technologies, which are used in order to determine the opinion of the social media users.

3 Semantic Web and Social Media

The Semantic Web is an extension of the present World Wide Web, which promotes standard formats and exchange protocols, which allow data to be easily shared between organizations using machine-readable formats (Berners-Lee et al. 2001). It is governed by standards established by the World Wide Web Consortium—W3C. Within the Semantic Web, ontologies are the primary means of representing knowledge. They are defined as a “formal specification of a shared conceptualization,” according to (Borst 1997), and have become the preferred means for representing knowledge, by providing both a common understanding of the concepts and being machine processable. Ontologies structure concepts in hierarchies, using a shared vocabulary in order to denote the concepts, their properties, and interrelationships between them. The information stored in the ontology can be retrieved using a specialized language, known as SPARQL.

Ontologies have already been successfully used in many social media analysis tasks, including detecting trending news and topics (Ejaz et al. 2018), modeling of extreme financial events (Qu et al. 2016), understanding people behavior in an earthquake evacuation scenario (Iwanaga et al. 2011), extracting user preferences regarding the characteristics of a product (Kontopoulos et al. 2013), and analyzing the emotions expressed in social media messages (Cotfas et al. 2016).

In order to be able to analyze from social media messages the public's perception regarding companies, two main categories of classes and relations need to be defined:

- Classes and relations used to represent the social media messages and the accounts that have published them
- Classes and relations used to store the terms that will be used to discover the company and its facets in the social media messages, as well as the classes used to represent the sentiment analysis results

For representing the first category of concepts, the ones concerning the tweets and their properties, we have chosen to use the ontology described in (Cotfas et al. 2016), which reuses classes and properties from well-known ontologies, as recommended

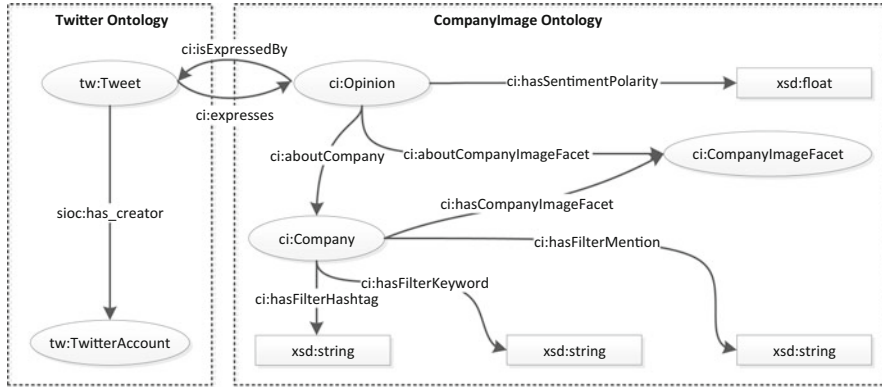


Fig. 1 Main concepts in the CompanyImage ontology. (Source: Developed by the authors)

in the ontology modeling best practices (Allemang and Hendler 2011). By reusing concepts and properties from recognized vocabularies such as Dublin Core (prefix *dcterms*), FOAF (prefix *foaf*), SIOC (prefix *sioc*), and Basic Geo WGS84 (prefix *geo*), the ontology facilitates the integration between the data extracted by analyzing the social media messages and the vast amount of information available in other ontologies, such as the ones included in Linking Open Data Cloud (Linked Data Community 2018). In the following, we have used the *tw* prefix in order to identify the classes included in this ontology.

The concepts used for representing the connection between the Twitter message, the analyzed company, and the expressed sentiment have been grouped into a CompanyImage ontology (prefix *ci*). The main classes around which this ontology has been built are *ci:Opinion*, *ci:Company*, and *ci:CompanyImageFacet*, as shown in Fig. 1. The *ci:Opinion* concept provides the link between the social media message, represented as an instance of the *tw:Tweet* class, and the company about which the tweet is expressing an opinion, represented as an instance of the *ci:Company* class. The *ci:Company* class includes properties for the name of the company, hashtags, mentions, and abbreviations that can be used by social media users in order to refer to the analyzed company in their tweets. A data property, called *ci:hasSentimentPolarity*, is used in order to store the value corresponding to the polarity of the expressed sentiment.

The class *ci:CompanyImageFacet* is used for storing the various elements that can affect the company image, including the products that the company is manufacturing, the services that the company is providing, as well as other aspects that are known to be important for the company image, such as the customer service. Similarly to the *ci:Company* class, for each instance of the *ci:CompanyImageFacet* the various ways in which social media users can refer to it should be stored, including the name of the product or service, hashtags, mentions, and any relevant abbreviations.

4 Social Media Analysis

The steps taken for analyzing the company image from social media messages are shown in Fig. 2 and further described in the subsections as follows.

4.1 Tweet Retrieval

During the first step, the tweets that reference the analyzed company are collected using the Public Stream API provided by Twitter. In order to identify only the tweets that reference the company, the general stream is filtered by comparing the text of the tweets with the company name, hashtags, mentions, and all the known acronyms that are used by social media network users in their tweets when referring to the analyzed company. The keywords, hashtags, and mentions are stored in the proposed ontology using the *ci:hasFilterHashtag*, *ci:hasFilterKeyword*, and *ci:hasFilterMention* properties.

4.2 Preprocessing

Given the fact that many social media users write their messages in a casual language, a preprocessing step is needed. A comprehensive discussion regarding the importance of preprocessing in social media analysis can be found in Bao et al. (2014).

Thus, during this step tokenization and normalization are applied in order to prepare the text of tweet for the sentiment analysis and company image face detection steps. In the normalization step, duplicated letters are removed, all-caps words are converted to lowercase, and URLs are removed.

4.3 Sentiment Analysis

Since the novelty of the proposed approach consists in the overall approach of analyzing the company image by evaluating the sentiment score of social media

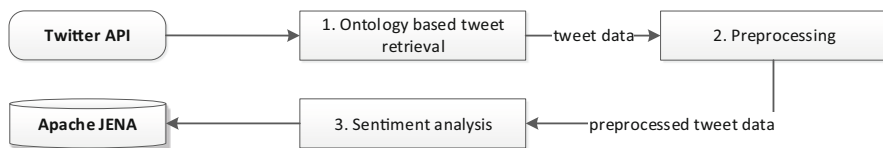


Fig. 2 Company image analysis steps. (Source: Developed by the authors)

Table 1 Sentiment polarity for three popular affective words

	Sentiment polarity
ok	1.60
good	1.90
great	3.10

Source: Developed by the authors



Fig. 3 Bag-of-words sentiment analysis. (Source: Developed by the authors)

messages and storing the results using semantic web technologies, we have chosen a baseline sentiment mining algorithm. It should be noted that using a more advanced sentiment algorithm would not imply any changes to the rest of the proposed approach.

In order to determine the polarity of a tweet, an algorithm that uses the bag-of-words model has been implemented. The bag-of-word model uses a sentiment lexicon, which contains a list of words, together with their associated polarities. The algorithm used in this chapter adapts the approach proposed by (Hutto and Gilbert 2014), without implementing all the heuristics, such as the ones used for negation, capital letters, and booster words or expressions. As a sentiment lexicon, the algorithm uses the Vader sentiment lexicon, which contains 7500 English tokens. The lexicon includes emoticons, acronyms, and initialisms bearing sentiment indication like “LOL” and commonly used slang with sentiment value such as “nah.” It has been validated with the help of 10 independent human raters. Words are rated on a scale from -4 , associated with extremely negative, to $+4$, associated with extremely positive.

The polarity scores for three popular affective words can be found in Table 1.

The algorithm starts by identifying the tokens in the tweet that also appear in the sentiment lexicon. The overall polarity of the tweet is afterward computed by adding the sentiment scores extracted from the lexicon, for the identified tokens, as shown in Fig. 3.

Even though the proposed emotion analysis approach is relatively simple, it has been found to provide fairly good results when tested on a publicly available corpus,¹ containing 5513 tweets collected for the search terms “Microsoft,” “Apple,” “Twitter,” and “Google,” which were annotated with the following sentiment labels: positive, negative, neutral, and irrelevant.

¹https://github.com/zfz/twitter_corpus.

```

SELECT
  (AVG(?sentiment) AS ?avg)
  (MAX(?sentiment) AS ?max)
  (MIN(?sentiment) AS ?min)
WHERE {
  ?opinion ci:hasSentimentPolarity ?sentiment .
  ?opinion ci:aboutCompany ?company .
  ?company skos:prefLabel ?companyName .
  FILTER (?companyName = "Company Name")
}

```

Fig. 4 Computing sentiment statistics for a company. (Source: Developed by the authors)

4.4 Company Image Facet Detection

While knowing whether users express positive or negative feelings in the tweets associated with the analyzed company is useful, much deeper insights can be gained by understanding the particular facet of the company that the users are considering. In order to determine the facets, the tokens in the preprocessed tweet are first stemmed, and afterward, compared with the stemmed versions of the possible words that users could use in order to denote the facets, associated in the ontology with the instances of the *ci:CompanyImageFacet* class using the property *skos:hiddenLabel*.

4.5 Analyzing the Results using SPARQL

The results of the analysis process are stored in the ontology by adding new instances of the *ci:Opinion* class, which can be afterward queried using the SPARQL query language.

An example is included in Fig. 4, which contains a query that will compute the average score for all the tweets that have been found for a certain company. The query also retrieves the minimum and the maximum sentiment scores.

A slightly adjusted query has been included in Fig. 5, which computes the same statistics as above, but taking into consideration only a single facet of the company image.

Furthermore, by interlinking with the vocabularies available in Linked Open Data, such as DbPedia (Auer et al. 2007), it becomes possible to include in the analysis additional data regarding the analyzed companies. Figure 6 highlights the interlinking approach between an instance of the *ci:Company* class in the proposed ontology and the corresponding individual in DbPedia.

```

SELECT
  (AVG(?sentiment) AS ?avg)
  (MAX(?sentiment) AS ?max)
  (MIN(?sentiment) AS ?min)
WHERE {
  ?opinion ci:hasSentimentPolarity ?sentiment .
  ?opinion ci:aboutCompany ?company .
  ?company skos:prefLabel ?companyName .
  ?opinion ci:aboutCompanyImageFacet ci:Innovation .
  FILTER (?companyName = "Samsung")
}

```

Fig. 5 Computing sentiment statistics for a company image facet. (Source: Developed by the authors)

```

ci:Samsung rdf:type owl:NamedIndividual ,
  ci:Company ;
  owl:sameAs <http://dbpedia.org/resource/Samsung>.

```

Fig. 6 Interlinking with DbPedia. (Source: Developed by the authors)

5 Conclusion

This chapter proposes a novel approach for evaluating a company's image by analyzing the huge number of tweets published every second using sentiment analysis and semantic web technologies. Sentiment analysis is used to determine whether the social media messages express a positive, a negative, or a neutral perception, also known as polarity. By storing the results using semantic web technologies, it becomes possible to exploit the possibilities of semantic inference and to access the vast amount of knowledge available in Linked Open Data for further analysis.

Among the possible further research directions, we consider that while knowing the perception of the user toward the company image is definitely important, analyzing the categories of emotions contained in Twitter messages using emotion analysis can provide even more information, by putting the focus on the actual feelings, such as happiness, sadness, surprise, or anger. The approach could also be extended to analyze the messages posted on other online social media networks, such as Facebook and Instagram, as well as by also analyzing how the expressed emotions have changed over time as a result of the changes in user perception.

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Part IV
SMEs/Entrepreneurship

Forms of Control of Advisory Contracts in Small Businesses: Case of Poland



Paweł Głodek

Abstract This chapter focuses on forms of control used by small businesses in contracts with different advisors that supply business advice. The use of legal agreement and personal trust are compared in the chapter. The analysis is carried out using the results of a study of 400 small companies operating in Poland, which used the external business advice in the last 3 years before the survey. The results indicate that trust and legal contract are most commonly overlapping. A significant role of trust in the implementation of advisory activities is recognized. However, a high proportion of formal relationships has been identified, which is not typical of research results obtained in other EU countries. There are differences between types of advice supplier as well as between forms of previous interactions between contract parties, which suggests that the type of established trust may influence small enterprises' behavior.

Keywords Small business · Business advice · Forms of control · Advisory contracts · Poland

1 Introduction

Small businesses have a number of specific market, financial, organizational, and technological characteristics that make them different from large enterprises. Hence, a small business should not be considered as a “scaled-down” or reduced version of a large company (Storey 1990). The specific behavior of small businesses can be observed, among others, in their use of unique knowledge sources and ways of cooperation with the environment. Business advice is considered to be one of the small companies' sources of knowledge. At the same time, a number of limitations of small enterprises related to the use of business advice are highlighted (Stawasz

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et al. 2018). One of such limitations is related to the issue of controlling the advisory process by the entrepreneur. The high level of difficulty in implementing the control function increases the transaction costs of consultancy and may reduce the propensity to use it. An efficient control mechanism facilitates contract performance.

In the case of a small company, two main control mechanisms of the advisory contracts are indicated: a written agreement and trust between the parties. Trust is a mechanism widely used in small businesses. With a high level of trust between partners, it is possible to reduce the costs of supervising contract performance by limiting activities related to monitoring and supervision (Tyc and Schneider 2017). On the other hand, it is indicated that a written agreement may limit the risk of adverse behavior of the other party of the business contract. Therefore, the aim of the chapter is to analyze the degree of utilization of both indicated forms of control in relation to the use of business advice services.

The chapter starts from the literature review related to the description of relations between small companies and business advisors, and then an analysis of the conditions of advisory contract control was carried out. The contractual relationship was presented in terms of the need for its control, using legal instruments or trust. The empirical part of the chapter is based on the results of a survey of 400 small enterprises operating in Poland that have benefited from business advice in the last 3 years before the survey. The contribution of the chapter is twofold. First the chapter indicates the frequency of using different types of control mechanisms in Poland and emphasizes the very high level of formal behavior compared to data from the UK. Second, there is indication of relationship between the form of contract control used and the type of advisor or type of initial relationship between them.

2 Small Enterprises and Business Advice

One of the key qualitative characteristics of the small business management structure is its small size, allowing for a direct contact between the management and employees. This is often accompanied by the association of company ownership with its day-to-day management, which means that an entrepreneur, or a team of entrepreneurs, has wide authority over a given company. As a result of the small size of such an entity, the entrepreneur's ability to act goes far beyond formal aspects, and is connected, among others, with psychological or sociological factors. They affect the company's activities, including the attitude to risk, the assessment of market opportunities, and, consequently, the development of the said company. Due to this fact, small businesses are often referred to in the literature as "emotional economic units" (Dexter and Behan 1999). It is believed that they create an idiosyncratic culture which is under the influence of personal characteristics of entrepreneurs and strongly associated with informal communication (Cagliano et al. 2001; Mazzarol 2011). Thus, it is said that decision-making processes in small businesses are usually devoid of formalization and are also significantly dependent on trust relationships with partners, based on a holistic approach (Gibb 2000). In

addition, Dalley and Hamilton (2000) indicate that decisions and actions of owner-entrepreneurs are shaped by the motivation to be independent, intuition, and a desire for a personal fit in the context of the relationship between the members of the small business management team.

Small business managers rarely have all the knowledge necessary to effectively and successfully run a business (Hutchinson and Quintas 2008). In addition, the scope of necessary knowledge changes with the development of the company. Thus, access to external sources of knowledge can become one of the important factors affecting the way in which such a company operates as well as the possibility and the manner of its development. The use of external knowledge can play a positive role in the process of minimizing barriers to development and reducing the perceived risk associated with small business decision-making (Głodek and Łobacz 2013). The necessary but lacking knowledge can be obtained from the environment in various forms, including business advice. It can be used by small businesses as support for managers in implementing their business objectives in the area of issues related to management, identification, and exploitation of market opportunities, learning, and implementing changes (Yusuf 2010; Ajmal et al. 2009).

Business advice shows diversity in relation to the content of services provided to companies of various sizes which are at different stages of development (Mole et al. 2013). In this context, the significant specificity of small businesses also with regard to the sources of business advice used is indicated. It is emphasized that managers of small companies tend to use different types of advisors, those that come from outside the ranks of professional consulting firms, and professional advisors (North et al. 2011; Soriano and Castrogiovanni 2012). These advisors tend to be friends, family members, or other acquaintances who have business experience, as well as individuals and entities that are related through business with their companies (but not in a directly advisory capacity), e.g., accountants, suppliers, clients/customers, or business partners (Blackburn and Jarvis 2010). Business advice from non-professional experts is particularly often used by newly established companies (up to 3 years of business activity) and companies that are going through various types of transformations (North et al. 2011).

Studies related to SME advisory services indicate the occurrence of a number of problems in the cooperation between advisors and companies. Many of these problems are related to behavioral factors of SME managers (Adamson 2000). Another element is the issue of a lack of trust and a need for its creation. Trust refers, among others, to the risk resulting from adverse actions taken by the advisor on the basis of the knowledge acquired about the company, including the disclosure of this knowledge to outside parties. Some owner-entrepreneurs may also show a lack of trust relating to the quality of services offered (Scott and Irwin 2009; North et al. 2011), which carries the risk of a lack of expected results and a loss of resources involved in the advisory process (including the entrepreneur's time).

Analyzing cases of business advice provision for small businesses, Łobacz et al. (2016) indicate that trust should be the main element associated with the use of advisory services by small businesses. A low level of trust in principle precludes establishing a deeper business advice relationship, as well as the process of

knowledge transfer and absorption, although this does not preclude the use of advice in matters that do not have a strategic importance for a given company.

3 Control of Advisory Contract: The Importance of Trust and Written Agreement

A contract in economic sciences is understood as a voluntary agreement on mutual obligations regarding the exchange of goods between the parties (Jensen and Meckling 1976). It is therefore a two-sided transaction in which the two parties agree on the implementation of certain obligations over a given period of time. Contracts in the economy are related to activities associated with their construction, monitoring, and controlling (Fama and Jensen 1983). This results in additional costs related to the conclusion and enforcement of contractual obligations (Tyc and Schneider 2017).

Trust can be seen as a form of alternative control to a written contract that specifies the responsibilities of both parties and the consequences of failure to fulfill these obligations. A written agreement facilitates the pursuit of claims and the solution of possible misunderstandings between the parties. On the other hand, it may limit the flexibility of the contract in the cases where not all of its elements can be specified in detail “in advance.” With regard to business relationships, the concept of trust is associated with the perception of the probability that a given entity will behave in a way that is expected of it (Gambetta 1988). In this approach, trust can be a form of relationship control. The control encompasses the dimensions regarding the manufacturing of the product and the price of the product. The customer should be convinced that the manufacturer makes the products properly and that the price requested is adequate (Heiskanena et al. 2008).

In an environment based on short-term contracts, it is difficult to develop lasting trust. On the other hand, the use of detailed control methods such as audit or quality control is not conducive to the process of building mutual trust (Gasik 2013). There is some kind of contradiction between the trust building process and the introduction of formal control methods. Nevertheless, Bresnen (2007) indicates that both methods of control can coexist and, in many cases in practice, are used simultaneously.

In the case of a business advice relationship, small companies have the opportunity to control the contract in the form of a trust relationship, a written agreement, or forms taking into account both methods. The analysis of the characteristics of small enterprises' behavior means that the attitude of small business owners, preferring informal behavior, will favor a high level of use of informal control mechanisms of business advice relationships, based on trust, not formal solutions.

4 Research Characteristics and Methodology

The study presented in the chapter covered small businesses employing up to 49 persons. It was carried out by means of the method of direct computer-assisted telephone interviews (CATI), using a survey form. In order to obtain the original data on the subject of the research, interviewers queried only those directly managing the analyzed companies. The possibility of filling in the questionnaire by a person employed who was not a company owner was excluded. The research was conducted in the period of June–August 2016. In order to maintain high quality of the research, all interviews were recorded for the purpose of verifying the manner in which they were conducted and compliance with methodological assumptions.

The research sample consisted of 400 Polish micro and small companies selected at random, using a random number generator, among a group of 9703 companies in the REGON database of the Central Statistical Office. The interview was conducted only with the companies that met all three requirements: (1) company employment below 50 employees, (2) in the 3 years prior to the survey the company conducted innovative activities, and (3) in the 3 years prior to the survey the company used business advice. The response rate was 14.5% and the coefficient of effectiveness was 4.1%.

5 Research Results

The respondents were asked a question about the scope of use of the written agreements with regard to the most important business advice services they had used in the last 3 years. It was assumed that the respondents, being small business managers, had accurate information concerning that issue. Answers provided by the surveyed respondents (Table 1) indicate a significant share of business advice relationships (35.3%) which did not have any written form and thus consisted only in verbally made arrangements. A slightly higher share of responses (37.3%) indicates business advice cases entirely covered by the written agreement, without any oral agreements.

Business advice cases in which both forms of agreements were used constituted a total of 27.3% of responses. However, cases where the provision of business advice services was based to a greater extent on verbal arrangements accounted for 14.3%, and those in which written arrangements prevailed accounted for 13.0% of enterprises. Summing up, it should be emphasized that the vast majority of the sample under examination consists of business advice cases in which the elements of the contract based to a greater or lesser extent on the form of verbal arrangements (62.7%) were used.

Table 2 presents the percentage distribution of the respondents' answers regarding the use of the written agreement as part of business advice relationships in small

Table 1 The use of the written agreement as part of the management of advisory contract in small businesses

The scope of use of the written agreement	No. of companies	% of companies (%)
No written agreement	141	35.3
A small part covered by the written agreement, most work based on verbal arrangements	57	14.3
Most of the tasks included in the written agreement, some of the arrangements only oral	52	13.0
The service entirely covered by the written agreement	149	37.3
Total	399	100.0

Data for 399 companies

One of the surveyed enterprises declined to answer the question regarding the scope of use of the written contract in business advice services contracts

Source: own research

Table 2 The use of the written agreement as part of business advice contract in small businesses by the type of advisor

Type of advisor	No written agreement (%)	A small part of the arrangements in the form of the written agreement (%)	Most arrangements included in the written agreement (%)	All arrangements included in the written agreement (%)	Total (%)
Legal advisor	31.6	14.7	17.9	35.8	100.0
Accounting and tax office	37.7	12.3	11.0	39.0	100.0
Consulting firm/ consultant	3.9	17.6	15.7	<u>62.7</u>	100.0
Business partner	<u>46.7</u>	20.0	20.0	<u>13.3</u>	100.0
Family member of acquaintance	<u>61.1</u>	16.7	8.3	<u>13.9</u>	100.0
Other entities	<u>45.0</u>	7.5	5.0	42.5	100.0
Structure of the sample	35.4	14.1	13.1	37.4	100.0

Data for 398 companies

Source: own research

companies taking into account the type of entity providing business advice services.¹ Sources of business advice were grouped into six categories: (i) legal advisor, (ii) accounting and tax office, (iii) consulting firm or professional independent consultant, (iv) business partner, (v) family member or acquaintance, and (vi) other entities (in total 10% of the sample), including responses indicating, among others, bank advisors or business environment institutions. Most of the surveyed enterprises indicated one business advice provider. In the case of more than one, the most important business advice from the owner's point of view was taken into account.

The structure of responses regarding the use of advice provided by legal advisors as well as accounting and tax offices is significantly similar to the structure of the entire sample. The responses regarding the other categories differ significantly. In the case of using professional advisory services (apart from legal and accounting advice), the vast majority of contracts were written agreements (62.7%, i.e., 25.3 percentage points more than the indicator for the entire sample), while almost none of the surveyed enterprises decided to have only the oral form of agreement (3.9%). A different situation can be seen in relation to business advice provided by persons/entities that were also in another business relationship with the surveyed enterprises. In this case, almost half of the surveyed entities pointed to a lack of the written agreement (46.7%, i.e., 11.3 percentage points above the indicator for the entire sample). An even greater difference was noted in the case of business advice provided by family members or acquaintances. In this case, well over half of the surveyed enterprises used business advice without a written agreement (61.1%, i.e., 25.7 percentage points above the sample average).

Table 3 shows the percentage distribution of the respondents' answers regarding the use of the written agreement as part of business advice relationships in small companies taking into account the main factor that influenced the selection of the advisor.² Thus, only the factor recognized by the entrepreneur as the most important one was taken into account. The most frequently indicated factors included (i) good experience resulting from previous business advice cooperation, (ii) a given advisor has been recommended by the third party, (iii) a given advisor has been selected based on prior cooperation not related to the provision of business advice, and (iv) a given advisor is a person known from previous personal contacts. Other responses, due to the low frequency of occurrence, were grouped into the "other" category. The structure of the responses indicates that if the choice of advisor was made on the basis of personal contacts existing before the advisory process, that fact had a significant impact on limiting the use of the written agreement. In this case, as many as two-thirds of responses indicate a complete lack of the written agreement

¹The analysis of data obtained by using the Chi-square test indicates a positive verification of the hypothesis about the dependence of both variables at the level of 0.05 significance (the value of the statistics is 58.99 at 15 degrees of freedom).

²The analysis of data obtained by using the Chi-square test indicates a positive verification of the hypothesis about the dependence of both variables at the level of 0.05 significance (the value of the statistics is 48.24 at 12 degrees of freedom).

Table 3 The use of the written agreement in the framework of contracts by the main factor of advisor selection

The main factor that influenced the selection of a particular advisor	No written agreement (%)	A small part of the arrangements in the form of the written agreement (%)	Most arrangements included in the written agreement (%)	All arrangements included in the written agreement (%)	Total (%)
Good experience resulting from previous business advice cooperation	28.0	21.3	8.0	42.7	100.0
Advisor recommended by the third party	24.3	13.9	19.4	42.4	100.0
Advisor selected based on prior cooperation not related to the provision of business advice	47.3	12.7	5.5	34.5	100.0
Advisor known through personal contacts	67.9	11.3	5.7	15.1	100.0
Other	31.9	11.1	16.7	40.3	100.0
Structure of the sample	35.4	14.1	13.1	37.4	100.0

Data for 398 companies

Source: own research

(67.9%, i.e., 32.6 percentage points above the average for the entire sample), and the written agreement covered most or all of the arrangements related to business advice services only in about one-fifth of the cases (5.7% and 15.1%, respectively). In situations where the advisory service was selected on the basis of previous cooperation not related to business advice, almost half of the contracts were only of oral form (47.3%, i.e., 12 percentage points above the average for the sample). On the other hand, in the case of business advice services recommended by the third parties, the level of using only the oral agreement was significantly lower than the average for the sample (24.3%, i.e., by 11 percentage points below the average). The results obtained in these categories are significantly consistent with the responses presented in Table 2.

6 Discussion

The obtained research results indicate a significant diversification of entrepreneurs' attitudes with respect to the methods of controlling an advisory contract. The most numerous responses were recorded in the case of extreme behavior, i.e., using only

the written form and a complete lack of the written agreements, i.e., favoring the use of only orally made arrangements. Intermediate types of behavior were declared less frequently. Interestingly, a reference to the results obtained by Bennett and Robson (2004) as part of the study of small British companies indicates a high tendency of Polish entrepreneurs to formalize advisory contracts. In the study, only 3.6% of the surveyed British companies based their activities related to business advice services more on the written agreements than on oral arrangements. Thus, the use of only the written agreement almost did not occur in the British study, with a comparable degree of contracts based only on verbally made arrangements. The results of Polish companies are consistent with the results of analyses indicating a low level of trust displayed by the Polish SME sector (KRDiRF 2015). In a broader context, they are in line with the indications regarding the low level of social trust in Poland (Nowakowski 2008; CBOS 2012). This factor is perceived as adversely affecting various forms of cooperation between enterprises, as well as between enterprises and their environment (KRDiRF 2015).

The results of the survey point to personal relationships as a means of transferring the trust mechanism. This is particularly visible in the area of advisory agreements related to persons known to entrepreneurs through personal contacts, including family members or acquaintances. In this case, the main mechanism of control of the analyzed agreements is trust. A high level of trust is used in the case of people/entities known from previous professional contacts not related to business advice. This applies to business advice relationships provided by various types of business partners. It can be assumed that trust in business advice services is a result of trust developed earlier in the framework of jointly implemented projects.

Interestingly, the results indicate a low level of trust in relation to entities that previously provided advisory services for a given company. Thus, growing experience in this area increases the level of use of the written form of advisory agreements. These findings indicate, among others, a tendency to reduce the risk of re-cooperation by the entrepreneur (or the advisor), which may suggest that the cooperation so far has not contributed to building mutual trust. This may be due to both the effects of cooperation and misunderstandings in its course. It may also be a result of previous negative experiences of the advisors themselves who use the written form to limit their own risk related to the adverse behavior of companies using their business advice services.

7 Conclusions

It should be pointed out that trust as a control mechanism is an important factor in the control of advisory contracts. On the other hand, international comparisons indicate that it is used to a lesser extent than in countries with a higher level of social trust. Due to this difference and a large scale of the problem, the scope and manner of using the trust mechanism in business advice should be subject to a more detailed analysis.

The use of various types of trust is a particularly interesting direction for further research. The analysis indicates the concentration of the surveyed entrepreneurs on personal trust derived from individual relations. To a lesser extent, trust built on the earlier implementation of business advice contracts is used. However, this may also be a result of the experience of small business partners. Business advice provided by consulting firms is definitely characterized by the highest degree of use of written agreements.

Due to the large use of trust as a control mechanism, it seems that this factor should be taken into account when constructing support policy instruments for small enterprises. It is advisable to analyze the extent to which the use of mechanisms based on formal agreements and procedures (market insight, tenders, etc.) within the framework of public support tools for small businesses can affect the effectiveness of this support. It seems that for a significant part of the small business sector this type of behavior is deeply contrary to the observed manner of conduct.

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Changes in the Business Models of Manufacturing Companies in the SME Sector After the Implementation of Cloud Computing Solutions



Renata Lisowska and Anna Pamula

Abstract Since the middle of the twentieth century, phenomena suggesting the entry of civilization into the post-industrial era have been observed in all areas of economic, social, and technical life. The methods of production, communication, trade, education, or employment are being transformed. This chapter considers the issues of how the implementation of information technology (IT) software in the cloud computing model affects business models of manufacturing enterprises in the SME sector. The applied methodology covered a literature review, desk research, and quantitative survey methods. The chapter reviews the literature on business model design and shows the role of cloud computing solutions in new ecosystems and smart services platforms. The main part of the chapter is devoted to the analysis of the data gathered with the use of the computer-assisted telephone interviewing (CATI) technique in the course of the research conducted among 277 small and medium-sized manufacturing enterprises in Poland in the first quarter of 2018. The analysis of the obtained research results shows that nearly 30% of the surveyed enterprises claimed to have noted some changes in their organizations' business model or operational activity after the introduction of IT applications available in the cloud computing model.

Keywords SME · Cloud computing · Business models

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1 Introduction

Since the turn of the twentieth and twenty-first centuries, the growing role of new small enterprises and all entrepreneurial activities initiated by technological progress as well as open access to the Internet have allowed for the creation of a broad global platform of relationships between companies regardless of their size where knowledge and innovation have become a source of competitive advantage (Audretsch and Thurik 2000, 2001). Currently, buyers of goods and services actively participate in the process of co-creating value, and therefore are not only passive users of products. There is a departure from the paradigm of creating value determined by customers and their needs in favor of the one in which the value is achieved through the communication system, i.e., information exchange with consumers treated as equals. In the face of the growing phenomenon of presumption, this is an extremely important problem to solve for small and medium-sized enterprises. Their offer must become more individualized and have additional customer value. The model of the entrepreneurial economy was defined at the beginning of the twenty-first century, among others, by Audretsch and Thurik (2000, 2001), who in their work defined the characteristics describing the differences between the managed and entrepreneurial economy, as well as by Tapscott (1996), who indicated the main elements describing the “new economy,” including, among others, knowledge, digital technology, virtual reality, molecularization, networking, the disappearance of intermediate functions, telecommunications, innovation, the presumption phenomenon, globalization, the organization’s constant adaptation to changing market requirements, the breakdown of the established order and traditional organizational structures, as well as technological stratification of society.

Many of these rules are a challenge for modern managers, e.g., decisions about a constant flow of information between the company and its environment, the need to supplement previously acquired knowledge or deepen it, and openness to market players. It should be noted that the chief principles include the constant occurrence of innovativeness and innovations in the process of company operations, internationalization as a natural component of the company development process, orientation toward individual components of value for the enterprise (unique tangible and/or intangible resources), and treating customers as a real source of information obtained by using modern forms of communication in the B2B and B2C systems. The innovation increases the probability of achieving better performance outcomes not only in big companies but also in SMEs (Expósito and Sanchis-Llopis 2019). Currently, the main role of the innovation stimulator is played by digital platforms and the service model of access to information technologies through cloud computing. The assumption of this chapter is that the implementation of IT software in the cloud computing model affects business models of manufacturing enterprises in the SME sector.

The applied methodology covered a literature review, desk research, and quantitative survey methods. Presented analysis are based on data obtained with the CATI methodology conducted among polish manufacturing SMEs in December 2017 and

January 2018. Our research has confirmed that manufacturing SMEs tend to integrate customers and other partners into their business model. And the surveyed entities most often indicated changes in two areas: new ways of cooperation, e.g., with suppliers or customers, to increase the scope of their operations, in this case the main source of value creation being cooperation with partners, and the use of cloud computing solutions for direct contact with customers (without the participation of commercial agents/intermediaries). This chapter is organized as follows. Section 2 describes business models, while Section 3 goes deeper into the digital transformation and new IT-driven business models. Section 4 presents the methodology and describes detailed results of the research, and the last section (Sect. 5) presents our final conclusions.

2 SMEs' Business Models

A business model is a diagram of conducting business activity by an enterprise; therefore, it is an inherent element of every business venture. The ability to define such a model should be included in the fundamental competences of small and medium entrepreneurs, allowing for the creation of company value. Considerations regarding the business model-related issues were widely discussed in the 1990s, both at the theoretical level, concerning the clarification of the “business model” concept, and at the empirical level, explaining the advantages of a business model in the management of strategic decisions on the development of the company. In the literature, many meanings of the business model can be found, which results in great difficulty in defining the concept, but at least three main approaches can be distinguished: the first approach consisting in defining the very concept of “business model,” determining its constituent elements and describing it as a theoretical concept, the second encompassing the classification of business models and analysis of their specificity, and the third focused on conceptualization and presentation of business models dedicated to a specific type of enterprises.

In practice, business models have gained importance in the era of the Internet and the significant spread of information systems (Osterwalder et al. 2005). Considerations regarding business models focus on various aspects of company operations. Based on the analysis of twelve definitions of different authors, Shafer et al. (2005) defined the term “business model” by distinguishing its four main components: strategic choices, value network, value creation, and value appropriation. According to Osterwalder and Pigneur (2010), a business model describes how an organization creates, delivers, and captures value. The authors have also identified nine key elements of a business model which concern its four main pillars, i.e., customer, offer, infrastructure, and financial credibility. In addition to the generally understood business model, e-organization business models are distinguished in the literature. Afuah and Tucci (2001) define a business model using a systemic approach describing it as a method adopted by a given company to increase and use resources in order to provide customers with products and services whose value exceeds the offer of

competition, at the same time ensuring the company's profitability. In this approach, a business model is a system composed of interrelated elements that interact with each other over time.

Contemporary business model definitions emphasize the sphere of value creation and place emphasis on innovation. According to Chesbrough and Rosenbloom (2002) (Chesbrough 2010), a business model performs the following functions:

- Articulates the value proposition—by describing target customers, researching their needs, providing value proposition, and assessing factors affecting customers.
- Identifies a market segment—selection of the target group, selection of the customer service policy, research on the needs of individual market segments.
- Defines the structure of the value chain—by making management decisions that answer the questions: Through what actions should customer value be delivered? How will the company capture part of this value?
- Details the revenue mechanism(s) (revenue model)—by choosing tools as well as the pricing and cost policy that will lead to the achievement of the planned income level; determines the company's position in the value network.
- Formulates the competitive strategy—which answers the questions: How can the company achieve a competitive advantage and use it for the company's expansion and the improvement of its competitive position in the market?
- Formulates the growth strategy—which defines the directions and areas of growth; whether intensive growth is to be achieved through integration or diversification.

At the beginning of the twenty-first century, the publication by Amit and Zott (2001) distinguished four basic sources of value creation including:

- Efficiency—the increase in efficiency is caused by the reduction of asymmetry in access to information between the company and the customer via the Internet, which makes it possible to make decisions faster and easier by increasing the amount of information obtained; the reduction of transaction costs is also a source of efficiency improvement.
- Complementarities—the complementarity of strategic resources may be a source of value; this also applies to complementary goods delivered to the recipient by the consumer, which will provide a greater value than the total value of owning each product separately.
- Lock-in—the potential for creating value in business grows, the more customers are motivated to repeat transactions and the more customer relationships are maintained and strengthened; proposing a specific product or service, i.e., customer value, for the first time is a source of significant retention benefits.
- Novelty—new products and services, processes, new distribution, and marketing methods in the traditional approach are perceived as sources of value creation, while in the new approach a source of value is the structuring of transactions between entities; links between entities not yet having a mutual exchange

relationship may lead to lower transaction costs and to the identification of customers' still undiscovered needs.

In terms of deliberations regarding a business model, it should be emphasized that despite many approaches to the problem of defining and building a business model, in most considerations one can find common elements. Analyzing the relations between the company and the environment in the literature, one can see two dominant views. On the one hand, there is a belief that the environment makes the enterprise dependent and therefore subordinated to its influence. On the other hand, there is a view that the company has the possibility of exerting an influence on the environment and its development. The first approach is called the entrepreneurship perspective and the other the adaptation perspective (Wiklund et al. 2009). The entrepreneurship perspective is characterized by a high level of innovativeness, which most often results in introducing pioneering and radical innovations, with the scale of novelty at the national and global level, while the adaptation perspective is manifested by the introduction of incremental innovations, with the scale of novelty at the company level.

Changes occurring in the environment of small and medium-sized enterprises mean that these entities have to modify their business model. An enterprise, in order to meet the needs of several customer segments, may apply a different business model to each of them. This is justified by the desire to push competition out of existing markets, the intention to enter new markets, and the desire to manage resources more efficiently or generate new revenue streams (Gassmann et al. 2014).

Casadesus-Masanell and Ricart (2010) claim that a business model presents the logic of the company's operation and determines how it creates value for stakeholders, while the strategy refers to the choice of a business model that ensures its effective competition in the market.

A business model should also be modified along with the growth and development of a small and medium-sized enterprise, responding to its current situation. A business model will have different assumptions and shape at the start of business activity, at the phase of rapid growth, and at the mature phase. There is therefore a need for reformulating and adapting a business model to the current phase of the company's life cycle (Tece 2010).

3 IT-Driven Business Models and Digital Transformation

According to Kagermann et al. (2011), in the global environment, companies that will be able to use new IT technologies in their business models for creating innovations will gain an advantage over those that use traditional models due to the fact that they will be able to create value not only for the customer and the organization itself but also for other market and environment stakeholders. IT-driven business models play a crucial role in transforming the way companies are doing their business and are the key focus area in the twenty-first-century global economy.

The classification of e-business models significant for small and medium-sized e-companies was proposed by Afuah and Tucci (2001) and distinguished brokerage model, advertising model, infomediary model, merchant model, manufacturer-direct model, and subscription model.

This model was extended by other authors, e.g., Abdollahi and Leimstoll (2011), who prepared a summary of e-commerce models, complementing the list with models indicated in the literature by other authors by affiliate model (a model that allows you to buy from one place, community model (a model based on users' loyalty), and utility "on-demand" model with services measured in accordance with the actual level of their usage. Moreover, Abdollahi and Leimstoll (2011) distinguished additional criteria for the classification of business models (trade item, ownership, and revenue) by making two- and three-dimensional classifications. The one-dimensional classification of models has been used in the study of changes in the SME business model in manufacturing enterprises in Poland, the results of which are presented in the further part of the chapter.

The business model diagram for enterprises from the creative industries sector, including small and medium-sized enterprises, developed by Johnson et al. (2008) adopts the following basic components of a business model: customer value proposition, profit formula, key resources, and key processes. The authors distinguish four models. In the model called "creative services providers" (e.g., advertising agencies, architectural studios, design studios), customer value consists in services covered by copyright (the B2B—business to business—sector of e-economy); the source of revenue is the fee for the provision of services; and the key resources are, among others, knowledge, skills, reputation, a strong brand, and an efficient management system that are used in the process of creation and design. In the model "creative content producers" (e.g., producers of films, music, creators of computer games, and software), customer value is the production of content delivered to a wide audience (the B2C—business to customer—sector of the e-economy); the main source of revenue is the sale of content, advertising, and licensing; and the key resources are financial resources, machines and devices, knowledge, reputation, and a strong brand used for the following processes: creation, design, production, and marketing. In the model named "creative experience providers" (e.g., theater producers, concert, and festival organizers), products and services offered that take the form of experiences constitute customer value (the B2C sector of e-economy); the main source of revenue is the fee for using products/services and advertising; and the key resources are financial resources, machines and devices, knowledge, reputation, and a strong brand used for the following processes: creation, design, production, and organization of the event and marketing. The last model proposed by the authors (Johnson et al. 2008) was described as "original creative content producers" (e.g., handicrafts creators, fashion designers) where value is the production of unique goods (the B2B economy sector); the main source of income is the sale of these goods; and the key resources are machines and devices, knowledge, reputation, and a strong brand used for the following processes: creation, design, production, and sales.

The currently observed process of digitization is characterized by the Internet of Things defined as the increasing use of sensors and software that create a huge number of new communication possibilities connecting people, products, and services overlapping the virtual and real world. The concept of Industry 4.0 and the idea of smart factories make it possible to analyze and interpret a huge amount of data as a base of smart services—allowing companies to better satisfy customer needs and expectations and enabling companies, including manufacture enterprises, to be more flexible (Thoben et al. 2017). Innovative business models used in new ecosystems affect the cost structure and require new types of revenue models and new business building blocks that can support manufacturing enterprises in their digital transition. Service platforms, where services can be combined from various providers on a planned or an ad hoc basis, are supposed to be a foundation for contemporary digital business models.

4 Research Results

4.1 Methodology

In this study, we attempt to determine if applying cloud computing-based IT affects the company business model. The list of business areas (processes) of IT was prepared based on an in-depth literature review and covered, among others, production, logistics, finance, HRM, SRM, CRM, product life cycle management, IT service management, and business office support. The list of changes in the business models was also prepared based mostly on the Afuah and Tucci (2001) classification described in Sect. 2.

The following research questions were covered:

1. In which areas do SMEs most often apply and use cloud computing solutions?
2. Does the age of the enterprise have an impact on the application area of cloud computing solutions?
3. Does the size of the enterprise have an impact on the type of changes introduced in the business model as a result of application and testing of cloud computing solutions?

For the purpose of the study, a questionnaire was developed and verified. The adopted research hypotheses were verified on the basis of the primary research conducted in December 2017 and January 2018 with the CATI methodology. The sampling frame was the database of the professional Market Research and Analysis Centre, and the sampling legal unit was a business entity with the registered office and/or production plant based in the territory of the Republic of Poland.

In the first stage of the study, approx. 50,000 enterprises belonging to Section C—Manufacturing—were randomly selected according to the Polish Classification of Activities based on the size of the enterprise measured by the number of employees (4 groups: micro-enterprises—employing 0–9 persons, small

enterprises—with 10–49 employees, medium-sized enterprises—with 50–249 employees, and large enterprises—with more than 249 employees). The total number of received, completed questionnaires was 400.

4.2 Findings

One of the research stages was aimed at investigating in which areas most companies applied and used cloud computing solutions. The surveyed respondents usually indicated three areas (see Table 1), i.e., sales (43.3% of responses), IT service management (43.3% of responses), and business office support (41.9% of responses), while the least frequently indicated were two areas: human resources management and product life cycle management (20.6% and 20.9%, respectively).

At the next stage, it was examined in which areas most companies applied and used cloud computing solutions considering the age of the enterprise (see Table 2). The obtained results indicated that startup companies (up to 3 years of business activity) most often applied and tested cloud computing solutions in production and business office support, young companies (3–10 years of business activity) in the area of business office support, and mature companies mainly in sales.

The application and testing of cloud computing solutions in the case of 70% of the small and medium-sized enterprises surveyed did not result in changes of their business model. In the case of micro-enterprises, only 38% made such changes, in the case of small enterprises 25.9%, and in the case of medium-sized enterprises 29.5%. The enterprises that declared changes in their business model defined what the change consisted in (see Table 3). The surveyed entities most often indicated changes in two areas: new ways of cooperation, e.g., with suppliers or customers,

Table 1 Areas in which cloud computing solutions were applied or tested in the enterprises surveyed by company size

Area ^a	Micro	Small	Medium	Total
Production	32.0%	43.2%	32.2%	35.4%
Sales	34.0%	38.3%	49.3%	43.3%
Logistics	12.0%	39.5%	36.3%	32.9%
Finance and controlling	40.0%	28.4%	32.9%	32.9%
Business office support	40.0%	39.5%	43.8%	41.9%
Human resources management	18.0%	12.3%	26.0%	20.6%
Customer relationship management	30.0%	25.9%	37.7%	32.9%
Supplier relationship management	30.0%	23.5%	34.2%	30.3%
Product life cycle management	22.0%	24.7%	18.5%	20.9%
IT service management	30.0%	33.3%	53.4%	43.3%

Data for 277 enterprises

Source: The authors' own compilation

^aThe surveyed respondents could select more than one area in which *cloud computing solutions* were applied or tested

Table 2 Areas in which cloud computing solutions were applied or tested in the enterprises surveyed by company age

Area ^a	Up to 3 years	3–10 years	More than 10 years
Production	57.1%	28.1%	36.2%
Sales	28.6%	37.5%	47.1%
Logistics	42.9%	25.0%	33.8%
Finance and controlling	28.6%	31.3%	35.2%
Business office support	57.1%	62.5%	40.0%
Human resources management	28.6%	28.1%	19.0%
Customer relationship management	21.4%	43.8%	33.8%
Supplier relationship management	42.9%	28.1%	31.4%
Product life cycle management	14.3%	15.6%	20.0%
IT service management	50.0%	50.0%	43.3%

Data for 256 enterprises, as 21 enterprises did not provide their answers to this question

Source: The authors’ own compilation

^aThe surveyed respondents could select more than one area in which *cloud computing solutions* were applied or tested

Table 3 The type of changes introduced into the business model as a result of application of cloud computing solutions by company size

Observed changes in the business model ^a	Micro	Small	Medium	Total
The company acts as an organizer of virtual markets where buy and sell transactions are made	10.5%	14.3%	11.6%	12.0%
The company collects, processes, and provides information about customers and offers from different manufacturers	5.3%	14.3%	2.3%	6.0%
The company applies cloud computing solutions to strive for direct contact with customers (without the participation of commercial agents/intermediaries)	52.6%	61.9%	41.9%	49.4%
The company acquires affiliated partners that place links to the company website on their websites; as a result the company can reach more customers with its offer	36.8%	14.3%	37.2%	31.3%
By increasing the attractiveness of its websites, the company increases revenue from ads placed there	10.5%	23.8%	11.6%	14.5%
The company seeks new ways of cooperating with suppliers or customers to increase the scope of its operations; the main source of value creation is cooperation with partners	68.4%	66.7%	74.4%	71.1%

Data for 83 enterprises

Source: The authors’ own compilation

^aThe surveyed respondents could choose more than one answer

introduced in order to increase the scope of their operations, in this case the main source of value creation being cooperation with partners, and the use of cloud computing solutions for direct contact with customers (without the participation of commercial agents/intermediaries) (71.1% and 49.4%, respectively).

Table 4 The areas and types of changes introduced into the business model as a result of applying cloud computing solutions

Area ^a	Type of changes in the business model ^b					
	1	2	3	4	5	6
Production	3.3%	3.3%	26.7%	16.7%	0.0%	80.0%
Sales	5.1%	2.6%	43.6%	20.5%	2.6%	66.7%
Logistics	6.7%	10.0%	53.3%	16.7%	10.0%	56.7%
Finance and controlling	2.8%	8.3%	38.9%	16.7%	5.6%	69.4%
Business office support	6.1%	3.0%	39.4%	30.3%	3.0%	60.6%
Human resources management	4.3%	4.3%	52.2%	43.5%	0.0%	78.3%
Customer relationship management	0.0%	7.9%	44.7%	31.6%	7.9%	68.4%
Supplier relationship management	10.8%	10.8%	43.2%	29.7%	13.5%	75.7%
Product life cycle management	4.5%	4.5%	36.4%	36.4%	0.0%	68.2%
IT service management	5.7%	2.9%	42.9%	22.9%	5.7%	71.4%

Data for 83 enterprises which have made changes to the business model as a result of applying cloud computing solutions

Source: The authors' own compilation

^aThe surveyed respondents could select more than one area in which cloud computing solutions were applied or tested

^bThe surveyed respondents could choose more than one answer 1. The company acts as an organizer of virtual markets where buy and sell transactions are made 2. The company collects, processes, and provides information about customers and offers from different manufacturers 3. The company applies cloud computing solutions to strive for direct contact with customers (without the participation of commercial agents/intermediaries) 4. The company acquires affiliated partners that place links to the company website on their websites; as a result the company can reach more customers with its offer 5. By increasing the attractiveness of its websites, the company increases revenue from ads placed there 6. The company seeks new ways of cooperating with suppliers or customers to increase the scope of its operations; the main source of value creation is cooperation with partners

Table 4 presents a more detailed analysis indicating changes in the business model observed by the surveyed enterprises after applying cloud computing solutions. It is worth noting that in the case of implementation of those solutions in the production area as much as 80% pointed to new ways of cooperating with partners and creating value.

Our research has confirmed that manufacturing SMEs tend to integrate customers and other partners into their business model. The surveyed entities most often indicated changes in two areas: new ways of cooperation, e.g., with suppliers or customers, to increase the scope of their operations, in this case the main source of value creation being cooperation with partners, and the use of cloud computing solutions for direct contact with customers (without the participation of commercial agents/intermediaries). Those results confirm that this type of integration allows the firm to ensure that they are responding to market needs and therefore avoiding potential losses due to market failure that was pointed out by Pierre and Fernandez (2018) as well as shows the openness of the firm and its innovation capacity explored by Danneels (2002). Research suggests that using the cloud computing model in enterprises may facilitate the creation of new business models and support the

expansion of cooperation with contractors and customers (Miller 2009; Rosenberg and Mateos 2011). Technological advancement and quality of IT solutions available in the cloud computing model may also increase the level of customer service and optimize business processes, which in turn reduces costs. Integration of IT solutions in the cloud computing model can be the basis for creating new business models, affecting the achievement of market success.

4.3 Limitations and Further Research

The presented research results, though providing interesting information, have their limitations. First of all, the sample of 277 enterprises is numerous but not sufficient to determine general trends of changes in business models, especially since among respondents only 30% noticed such changes. This may be due to the fact that the research covered changes inspired by the implementation of cloud computing solutions, and the process of transition to this model, as indicated by the same data, did not show high dynamics at the time of the study (see Table 1). In the research, the industries of the surveyed companies were not analyzed thoroughly, and such a division could indicate significant differences from the perspective of the research problem. Another limitation of the study is the analysis of only selected changes in business models, as the elements were analyzed in accordance with the specificity of e-business models functioning in the e-commerce market for many years. Nevertheless, the research forms the basis for determining the factors and directions of development of further studies on business models. The authors are planning further research allowing for more detailed investigations on how the developing services available in the cloud computing model, smart service platforms, and entire ecosystems affect business models of SME sector manufacturing entrepreneurs in relation to various industries.

5 Conclusions

New business models based on smart manufacturing are still in their early stages of development, but it can be seen that these business models are important not only for large companies but for SMEs as well. Almost a decade ago, Kagermann et al. (2011) indicated that IT-driven innovations would continue to drive customer and organization value, and in the present time, this statement is becoming even more true. The examples from the literature, business practices, and offers of IT providers create opportunities for the development and implementation of innovative business models. The progressive process of servitization confirms that new smart services are becoming more important for manufacturers than offering a physical product. What is stressed in many publications is the fact that the new industrial challenge requires the product to be smart and be able to exchange data. To avoid

implementing a new technology only for the sake of implementing a new technology, manufacturers will have to determine what is needed for this new process of communication, how and what for this communication should be carried out, and then develop a roadmap leading to a smart factory. Our research has confirmed that manufacturing SMEs tend to integrate customers and other partners into their business model. And the surveyed entities most often indicated changes in two areas: new ways of cooperation, e.g., with suppliers or customers, to increase the scope of their operations, in this case the main source of value creation being cooperation with partners, and the use of cloud computing solutions for direct contact with customers (without the participation of commercial agents/intermediaries).

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Resilience and Entrepreneurship, Aligning Theoretical and Methodological Approaches



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Abstract Taking into account the most flattering studies, only 40% of new companies surpass the critical seven years of existence and just a 3% of startups go on to scale up. Nonetheless, 45.8% of all founders have failed at least once in the past, and therefore, they can be classified as serial entrepreneurs. The intriguing question arises why some persons pursue founding a company and, even further, why after a negative trial they challenge fate again? The answer is neither simple nor unidimensional. One of the many reasons why nascent entrepreneurs confront the high probability of failure and if failing face venture enterprise again lies in an inherent ability to manage adversity and to recover from setbacks: this is what we call the capability of resilience. We analyze the most relevant literature on entrepreneurial resilience, both from the perspective of individual psychology and from cognitive and behavioral approaches, in order to offer a comprehensive understanding of the human ability to cope with and overcome entrepreneurial failure. A meta-analysis of the different theories on resilience is conducted in order to identify the main academic discourses on entrepreneurial resilience. Additionally the different tests on resilience are categorized under the identified academic discourses; due to the understudied status of the topic, scholars illustrate a theory focused on resilience, but they use surveys designed to underpin other theoretical perspectives; consequently, the methodological tool applied does not always result in congruity with the postulated theories. Therefore, the main objective of this chapter is to establish an alignment between the diverse theoretical conceptions and the methodological approaches when enlightening the entrepreneurial resilience phenomenon.

Keywords Entrepreneurship · Resilience · Entrepreneurial resilience · Individual psychology · Cognitive and behavioral approaches · Resilience measurements

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1 Introduction

Due to the importance of being successful in dynamic, competitive, and uncertain business situations entrepreneurs are facing today, some researchers have shown that resilience is an important intangible resource that influences entrepreneurship (De Vries and Shields 2006; Lee and Wang 2017) and that the resilience of entrepreneurs is affected by financial, social, cognitive, and emotional aspects (Hayward et al. 2010). Nevertheless, the concept of entrepreneurial resilience is still under construction (Hedner et al. 2011; Korber and McNaughton 2018; Fatoki 2018).

Entrepreneurial resilience is understood as entrepreneurs' behavior in businesses, "an amalgamation of behavioral patterns" (De Vries and Shields 2006, p. 33), also as a trait or a state (Yang and Danes 2015). Entrepreneurial resilience refers to the ability of entrepreneurs to preserve psychological and emotional stability when managing unfavorable economic situations in their businesses (Corner et al. 2017) or as the outcome of the adaptation of entrepreneurs to the changing and challenging environment they meet (Bulmash 2016).

Resilient entrepreneurs do not only survive after a crisis and learn from their mistakes; they also have the capacity of perceiving possibilities in the chaos and of making profound transformations to their businesses, if necessary (Ayala and Manzano 2014; Savolainen et al. 2016). In difficult situations, resilient entrepreneurs develop and use personal resources in their actions, which do not only contribute to the growth and success of their companies (Ayala and Manzano 2014) but also to their well-being (Yang and Danes 2015). Entrepreneurial success involves both organizational and personal realization (Fatoki 2018) which means having good health and acceptable energy levels in stressful business situations that allow them to keep managing the business as well as taking ethical and efficient actions (Buang 2012).

Hereunder, we will expose the most recognized literature about resilience as personality trait and as a cognitive-behavior process to then proceed to analyze the measuring entrepreneurial resilience tools in a further chapter and using the Datenbank-Infosystem (DBIS) on peer-reviewed papers and abstracts.

2 Literature Review

In our study we found that most of the researchers conduct their inquiries analyzing different factors or variables connected to the construct of entrepreneurial resilience. Some of the factors/variables are spirituality (Singh et al. 2016), persistence (Fisher et al. 2016), flexibility, motivation, perseverance, and holistic positivism (De Vries and Shields 2006), locus of control (Bulmash 2016), trust (Savolainen et al. 2016), hardiness, resourcefulness, and optimism (Manzano-García and Calvo 2013; Ayala and Manzano 2014). Bulmash (2016) presents three factors determining

entrepreneurs' resilience: the self (internal strengths), business situational-cognitive abilities (cognitive competence), and business social-relational abilities (social competence). More recently, Corner et al. (2017) find a relationship between the construct of resilience and grief, coping, and learning in studying entrepreneurial resilience between entrepreneurs who failed. Lee and Wang (2017) propose a categorization of factors affecting the construct, namely, the intrapersonal, the interpersonal, and the contextual factors. Each factor includes different facilitators or enablers.

In summary, researchers describe entrepreneurial resilience as a form of behavior to overcome difficulties through adaptation and learning (Lee and Wang 2017) and also as an ability to act fast and in a proper way to unexpected critical events (Hedner et al. 2011; Korber and McNaughton 2018; Fatoki 2018). In order to understand better the complexity and nature of the entrepreneurial resilience construct, it is primordial not to define it merely as a reactive ability or as a response, but as an *ex ante*, multilevel capacity, as well as a contextual embedded dynamic process of positive transformation under adverse conditions (Korber and McNaughton 2018).

The mere insights given in the previous paragraphs serve as an illustration of the importance resilience is gaining recently in entrepreneurship literature, namely from 2016 to the present. On the other hand, it shows as well the diverse approaches, linking resilience with constructs, to name a few, like locus of control, well-being, optimism, spirituality, persistence, flexibility, motivation, perseverance, self-efficacy, overconfidence, trust, hardiness, resourcefulness, innovation, adaptive behavior, quick response, business social abilities, etc. It resembles the treatment given to the concept of emotional intelligence in the literature as well, a bag of virtues where, in this case, everything that carries embedded psychical robustness and social competence has room. In line with Korber and McNaughton (2018) when defining entrepreneurial resilience, in numerous cases, it is added the adjective "entrepreneurial" fore resilience, and in this way, entrepreneurial resilience is considered as explained, ignoring that the entrepreneurial resilience may have other peculiarities different as resilience facing a humanitarian, personal, or economic crisis. The models of entrepreneurial resilience work mainly on the assumption that resilience is a personality trait inherent in the initiators of ventures and which is part of human capital before venturing, *ex ante* approach; certainly resilience may be an ability developed beforehand, but considering the capacity of individuals to develop and grow may as well have been acquired in the process of venturing or as an disruption after a business setback (Hayward et al. 2010). Furthermore, entrepreneurs are not a homogeneous group; it can be distinguished between successful entrepreneurs, one-time entrepreneurs, and serial entrepreneurs as well, among other criteria for classification.

Korber and McNaughton (2018), in an effort to grant scientific rigor to the amalgam of definitions and approaches regarding entrepreneurial resilience, offer a systematic multidisciplinary review and identify six scholarly conversations: resilience as a trait, resilience as a trigger for entrepreneurial intentions, entrepreneurial behavior as organizational resilience enhancer, resilience in the context of entrepreneurial failure, and resilience as a process of recovery and transformation. This

classification gives a framework to clear up the literature on entrepreneurial resilience across academic disciplines; the purpose of our work is to delimit the classification in the discipline of psychology on entrepreneurial resilience, and therefore, and as exposed above, the focus will lie on resilience considered as a personality trait of the entrepreneurial actor or from a cognitive and behavioral approach as a manifestation of entrepreneurial thinking and acting. In doing this, we are aware valuable theories are excluded from this study, only with the intention to make a contribution to elucidate personality, cognitive and behavioral approaches toward entrepreneurial resilience, and taking into consideration the intertwined aspects of personality, thinking and acting of individuals in general and entrepreneurs in particular.

Therefore, we will focus on resilience prior to the entrepreneurial act and both as a trait and as a cognitive-behavioral process considering that it is only part of the “big picture” because as Liao points out that the causes of entrepreneurial failure are manifold: one internal, the personal characteristics of the entrepreneur, and three external, the structure, the context, and the process of the company itself (Liao 2004).

2.1 Resilience as Personality Trait

Following Ayala and Manzano (2014), the main assumption under this theoretical point is that some individuals are better equipped to deal with disruptions, which in turn predicts entrepreneurial success. In the same vein, Zautra et al. (2010) point out that resilience is used in the meaning of recovering easily and quickly from setbacks, and it is the result of individuals interacting with the environment and the process that either promote well-being or protect them against the overwhelming influence of risk factors. Certain people, following Spangler et al. (2012), are more resilient to the stressors that arise from life events and seem to bounce back more easily from adversity than others. They are even more likely to have secure emotional attachments to others, enjoy a good sense of humor, be action-oriented, and hold a strong sense of personal competence. Resilient individuals seem inclined to initiate physical activities, express their needs, and have the social skills to enlist the support of others.

Resilience in entrepreneurship has been influenced by the positive psychology of Fredrickson. Hayward et al. (2010) combine the theory of Fredrickson (2001) about the role of positive emotion in rebounding venture (broaden-and-build theory of positive emotions) with the cognitive perspectives on confidence in decision making. The combination of confidence and positive emotions of founders develops an emotional, cognitive, social, and financial resilience. Confidence in one’s self-efficacy is variable, depending on the situation; by contrast, optimism, narcissism, and self-esteem are more enduring traits. The study of the relation between both variables and its influence on resilience in serial entrepreneurs offers a more comprehensive model on antecedents in the entrepreneurial act. On the one hand, prior

ventures provide valuable resources for an entrepreneur's failure (consistent with the self-efficacy theory) and, on the other hand, higher levels of confidence in ventures fuel positive emotions, which in turn generate resilience for building new ones.

Seligman (1990) postulates that attributional style pervades in many important life decisions and persists through life, the belief in control over one's fate can be acquired in a very early stage of life, and it is demonstrated (Gatewood et al. 1995) that entrepreneurs tend to avoid paralyzing attributions of blame. In accordance with this idea, Bulmash (2016) considers the locus of control as the psychological capital that contributes to increased entrepreneurial resilience in cases of prolonged economic adversity. Entrepreneurial adversity is negatively associated with job satisfaction and self-reported health being a moderate effect of the locus of control. The fact that entrepreneurs face adversity, risk, and stress suggests that they have a certain dispositional characteristic and psychological capital that enables them to endure high levels of uncertainty and adversity; a sustained well-being in the face of adversity serves as an indicator of entrepreneurial resilience.

Going further, resilience can be seen, from the point of a capability, as more than just the capability of an individual to manage adversity and preserve well-being and additionally the capability of negotiating for the resources to experience it in a culturally meaningful way (Masten 2001). In the same way, Bernard and Barbosa (2016) conduct a qualitative biographical study to understand the role of life adversities in the development of resilience resources in entrepreneurs, moving the focus from resilience as a quality of the entrepreneur toward a process-related view in which the resilience dynamic flows.

2.2 Resilience as a Cognitive-Behavior Process

Resilience is better understood as a process, while resiliency refers more typically to a trait of the individual (Masten 1994). Traditionally, entrepreneurship theories on psychology stress trait aspects; however, the focus of study is shifting toward the actions and outcomes as a way to define and elucidate entrepreneurship (Aldrich and Martínez 2001). Behavioral and cognitive aspects of the field must be examined in order to enlighten entrepreneurial venture and understand it as a dynamic process the degree of resilience being modifiable. Such a dynamic process is understood by Miremadi (2013) as interaction between perceived risk and a range of protective coping skills that provide an individual with the ability to adapt well in the face of adversity and thrive. A meta-analysis of the intentions-behavior/action gap shows that up to 39% of the variance in actual behavior can be explained by intentions (Armitage and Conner 2001). The European Commission refers in its consideration about entrepreneurship as the attitude reflected by a person's drive and aptitude not to only identify opportunities but pursue to produce economic benefits or new values.

The intent to start a firm is a widely used cognitive construct in entrepreneurial literature (Thompson 2009), as Wong and Choo (2006) argue that intention is a

critical condition of entrepreneurial behavior. Entrepreneurship is an intentional activity and the intention as such precedes the behavior; therefore, the theory of planned behavior of Azjen (2011) may be considered as part of this entrepreneurship discourse. Hlatywayo et al. (2017) in their study about psychological capital and its relation to entrepreneurial intentions analyze, among other variables, resilience and how it influences entrepreneurial intentions; they have founded in their research that resilience significantly affects entrepreneurial intentions.

Entrepreneurial self-efficacy and resilience are key factors in pursuit of entrepreneurial initiatives; in the context of social cognitive theories research has been conducted to link self-efficacy to resilience and to entrepreneurial intentions (Benight and Bandura 2004; Zhao et al. 2005). Resilience, rather than rare and extraordinary, emerges from relatively ordinary processes that result from unexpected dynamics and can be learned over time and experience (Bullough et al. 2014). An empirical study on entrepreneurial intentions in danger zones shows that the association of resilience with entrepreneurial intentions is even stronger than self-efficacy and intentions, yet they are interlinked concepts; also that the stronger the sense of efficacy, the more likely people are to have a pathway to resilience when facing adversity as a learning experience (Luthans et al. 2006).

3 Measuring Resilience

Literature shows that there are scales aimed at measuring resilience, most of which have been designed by methods of psychology. Some researchers of entrepreneurial resilience have adapted and/or used those scales despite the implicit differences of studying resilience in psychology than in the context of entrepreneurship (Lee and Wang 2017). Consequently, the results of the research using those scales illustrate only the psychological aspect of entrepreneurial resilience (Lee and Wang 2017) although theory shows that financial, social, cognitive, and emotional aspects affect the resilience of entrepreneurs (Hayward et al. 2010). Therefore, it is necessary to design research instruments that permit getting a broad understanding of entrepreneurial resilience (Lee and Wang 2017; Corner et al. 2017). Furthermore, approaches within the psychology discipline toward entrepreneurial resilience are manifold and reflect the primary vision on resilience; therefore, applying a scale developed under a psychological approach to validate hypothesis formulated under different psychological premises distorts the results.

Based on studies about entrepreneurship, we regard as remarkable the study undertaken by Smith-Osborne and Whitehill Bolton (2013) who present a compilation of instruments used to measure resilience of adults. The scales in their research are the following: the Connor–Davidson Resilience Scale—CD-RISC—(Connor and Davidson 2003), the Resilience Scale for Adults—RSA—(Friborg et al., 2003, 2009), the Resilience Scale—RS (Wagnild and Young 1993), the Baruth Protective Factors Inventory—BPF—(Baruth and Carroll 2002), the Brief-Resilient Coping Scale—BRCS—(Sinclair and Wallston 2004), and the resilience in midlife

scale—RIM (Ryan and Caltabiano 2009). We consider appropriate adding to the list the Connor–Davidson Resilience Scale 10—CD-RISC 10-item scale (Campbell-Sills and Stein 2007). Specific information of the scales is presented in Table 1.

Table 1 Measurement scales of adults' resilience

Authors	Tool	Aim	Scaling	Factors and items connected to resilience
Wagnild and Young (1993)	Resilience Scale (RS)	Detect variables affecting resilience (initially in older women after experiencing major life events)	7-point Likert scale	Two factors, 25 items Personal competence; acceptance of self and life
Baruth and Carroll (2002)	Baruth Protective Factors Inventory—BPFI	Aimed to be used in measuring protective factors furthering resilience in adults	5-point Likert scale	Four factors, 16 items. Adaptable personality; supportive environment; fewer stressors; compensating experiences
Connor and Davidson (2003)	Connor–Davidson Resilience Scale (CD-RISC)	“. . .to quantify resilience, to establish reference values for resilience in the general population and in clinical samples, and to assess the modifiability of resilience in response to pharmacologic treatments in a clinical population” (p. 78)	5-point Likert scale	Five factors, 25 items. Personal competence, high standards, and tenacity; trust in one's instinct, tolerance of negative effects, and strengthening effects; positive acceptance of change and secure relationships; control; spiritual influences
Friborg et al. (2003, 2009)	Resilience Scale for Adults (RSA)	Measurement of resilience taking into account adults psychological and ecological/contextual terms	Semantic	Six factors, 33 items. Positive perception of self; positive perception of future; social competence; structured style; family cohesion; social resources
Sinclair and Wallston (2004)	Brief-Resilient Coping Scale—BRCS	Identify ability of people to cope with stress	5-point grade scale	One factor, 4 items. Adaptive coping
Campbell-Sills and Stein (2007)	CD-RISC 10-item scale	To determine the extent to which a person displays resilience		Two factors, 10 items. Hardiness; persistence
Ryan and Caltabiano (2009)	The resilience in mid-life scale—RIM	To study resilience in midlife	5-point Likert scale	Five factors, 25 items. Self-efficacy; family/social networks; perseverance; internal locus of control; coping and adaptation

Source: The authors

3.1 *Measuring Entrepreneurial Resilience*

In order to measure entrepreneurial resilience, a number of researchers have used some of the scales designed to measure resilience in adults, while other researchers have developed their own tools according to the research goals.

From the adult scales, the Connor–Davidson Resilience Scale is the most used in research of entrepreneurial resilience (Lee and Wang 2017; Fatoki 2018). Connor and Davidson (2003) have designed the Connor–Davidson Resilience Scale (CD-RISC) stating that “Resilience may be viewed as a measure of stress coping ability and, as such, could be an important target of treatment in anxiety, depression, and stress reactions” (Connor and Davidson 2003, p. 76). The scale has five factors with 25 items, each rated on a 5-point scale (0–4), higher scores reflecting greater resilience (Connor and Davidson 2003). The subscales or factors included are “personal competence, high standards, and tenacity” (factor 1), “trust in one’s instincts, tolerance of negative affect, and strengthening effects of stress” (factor 2), “positive acceptance of change and secure relationships” (factor 3), “control” (factor 4), and “spiritual influences” (factor 5).

After a revision and some modifications of the CD-RISC scale, Campbell-Sills and Stein (2007) propose the CD-RISC 10-item scale that displays outstanding psychometric properties and is usable to measure resilience, again in general, but very applicable for entrepreneurial resilience. Fisher et al. (2016) suggest that the CD-RISC 10-item scale is suitable for measuring individual level resilience in entrepreneurs, and Fatoki (2018) uses the CD-RISC 10 to determine if entrepreneurial resilience influences success in small and medium-sized enterprises in South Africa. Manzano-García and Calvo (2013) have revised the Connor–Davidson Resilience Scale (CD-RISC), and from it the researchers have designed and validated a Spanish version using a sample of entrepreneurs. The Spanish scale contains 23 items grouped into three factors associated with entrepreneurial resilience: hardiness, resourcefulness, and optimism. This scale has been validated in further research, as by Ayala and Manzano (2014). De Vries and Shields (2006) have conducted their research following the qualitative research approach; the results of the study show that there are three factors associated with entrepreneurial resilience: holistic positivism, motivation, and perseverance.

In order to measure the resilience of newly developed entrepreneurs, Buang (2012), see Table 2, have designed a scale. The scale has two sections with 42 and 23 items, respectively, divided into 3 factors (personality, psychological capital, and human capital) and 4 elements (cognition, state of psychology, action process, and social capital). In the same direction, the Bulmash (2016) research aims to determine if locus of control as psychological capital contributes to entrepreneurial resilience and to surviving long-lasting economic troubles. Lee and Wang (2017) propose a model specifying factors affecting entrepreneurial resilience, intrapersonal, interpersonal, and contextual factors. Each factor comprises multiple subfactors which, in combination, operate at the same time. The intrapersonal factor embraces personal traits (11 enablers), motivation (2 enablers), human capital (3 enablers), and values and beliefs (5 enablers). Secondly, the interpersonal factor

Table 2 Entrepreneurial resilience measurement tools

Authors	Aim	Factors and items connected to entrepreneurial resilience
De Vries and Shields (2006)	To find factors to entrepreneurial sustainability	Three factors: holistic positivism, motivation, and perseverance
Buang (2012)	To measure the level of resilience of recently developed entrepreneurs (between 1 and 3 years)	Two sections, 42 and 23 items, respectively, 3 factors. Personality; psychological capital; human capital
Manzano-García and Ayala-Calvo (2013)	Spanish version of the CD-RISC scale aimed to know if factors embracing entrepreneurs resilience and to know if entrepreneurs' resilience predicts entrepreneurial success	Three factors, 23 items. Hardiness; resourcefulness; optimism
Bulmash (2016)	To measure the level of resilience of entrepreneurs after financial crisis	Two factors: locus of control; well-being
Lee and Wang (2017)	Identification of main factors affecting entrepreneurial resilience and creation of a model to further development of entrepreneurial resilience	Three factors, 11 subfactors. Intrapersonal factor; inter-personal factor; contextual factor
Corner et al. (2017)	Measurement of entrepreneurial resilience after venture termination	Three factors: grief; coping; learning

Source: The authors

involves informal supportive relationship (3 enablers), formal relationship with professional groups (3 enablers), and teamwork (3 enablers). Lastly, the contextual factor contains the subfactors resource availability (2 enablers), culture (2 enablers), rules and regulations (2 enablers), and industrial characteristics (1 enabler). Corner et al. (2017) present a new scale aimed to measure entrepreneurial resilience after venture termination, showing relationships between resilience and grief, coping, and learning. The scale has its theoretical foundation in modern psychology.

Obviously, some attempts to measure and to train resilience have a comprehensive character, and they may be used in any area in which we aim to measure resilience; the same can be applied to training programs which encompass in the curriculum measures targeted to improve cognitive as well as social skills affronting situations which require resilience. Among these programs it is worth mentioning the Master Resilience Training Course for the USA Army based on materials developed from the Penn Resilience Program (PRP) at the Penn Positive Psychology Center of the University of Pennsylvania (Reivich et al. 2011).

4 Methodology

The evaluation of resilience theories and measurement scales is focused, as we mention above, exclusively within the scope of the psychological disciplines. We are aware that probably we have ignored valid and reliable scales as well as valuable

theories from other sciences like sociology, economics, etc. but considering that our purpose is to discern from which psychological approach the scale was designed it appeared to us as the most appropriate methodological approach. In this chapter, we have reviewed in a systematical way theoretical approaches toward resilience and the resiliencies scales used for resilience in general and for entrepreneurial resilience in particular; we have conducted a meta-analysis of the terms personality and trait or behavior and cognition frequency in the theoretical approaches and done the same for the measurement tools, looking at the proposed subscales in every tool and analyzing if they were targeted to measure personality or behavior. For doing so we have revised the Datenbank-Infosystem (DBIS) on peer-reviewed papers and abstracts with a total of 83 journals on entrepreneurship. Most of the references were hand-picked in order to ensure we would not miss an important contribution to the topics.

The search strategy has consisted of a quantitative methodological review of searching and screening the concepts in the databases, and additionally, we have conducted a qualitative research by hand of the references we found relevant.

For doing automatic searching, we combined the term of *relisien** following by different key words (KW):

1. (*) + (KW: trait) or (KW: personality)
2. (DE: *relisien**) + (KW: *behav**) or (KW: *cogn**)
3. (DE: *relisien**) + (KW: trait) or (KW: personality) + (KW: questionnaire) or (KW: scale)
4. (DE: *relisien**) + (KW: *behav**) or (KW: *cogn**) + (KW: questionnaire) or (KW: scale)
5. (DE: *relisien**) + (KW: *questionnaire**) or (KW: scale)

Since the results were so numerous we introduced a limit by the publication years (not older than the year 2000). Additionally, we conducted a google research with the following terms:

1. “resilience”
2. “resilience & measurement”
3. “resilience & scale”
4. “resilience & personality”
5. “resilience & cognition” and
6. “resilience & behavior”

At the end, we aligned the theories with the scales (as it can be seen in Table 3).

5 Results

Albeit there is a considerable number of scales developed for measuring resilience, they are not widely validated (Windle et al. 2011); as Manzano-García and Ayala-Calvo (2013) suggest there is little evidence in deciding on one or another measure

Table 3 Categorization of measurement scales

Authors	Entrepreneurial resilience focus	Authors	Entrepreneurial resilience focus
De Vries and Shields (2006)	Resilience as personality trait	Baruth and Carroll (2002)	Resilience as a personality trait
Buang (2012)	Resilience as personality trait	Connor and Davidson (2003)	Resilience as a personality trait
Manzano-García and Ayala-Calvo (2013)	Resilience as personality trait	Friborg et al. (2003)	Resilience as a personality trait
Bulmash (2016)	Resilience as personality trait	Sinclair and Wallston (2004)	Resilience as a cognitive-behavior process
Lee and Wang (2017)	Resilience as personality trait and resilience as a cognitive-behavior process	Campbell-Sills and Stein (2007)	Resilience as a personality trait
Corner et al. (2017)	Resilience as a cognitive-behavior process		

Source: The authors

and it may lead researchers to select the inadequate scale or test for a specific population or purpose. In addition, there is a lack of alignment and congruence between the selected scale and the theoretical focus on entrepreneurial resilience. Almost all the scales are not designed for business purposes; nevertheless, the Connor–Davidson Resilience Scale (CD_RISC), the Baruth and Carroll Scale (Baruth Protective Factors Inventory—BPFI), the Freiburg et al. Scale for Adults (RSA), and the Campbell-Sills and Stein CD-RISC Scale have been widely applied for entrepreneurial resilience.

As it can be seen in Table 3, we propose a categorization of the resilience measurement scales based on the conducted research of the subjacent theories.

6 Conclusions

From the research conducted, we can conclude that most of the resilience measurement tools are conceived to measure resilience as a personality trait. Although recent theories are focused more on the behavioral and cognitive aspect, we can see there is a flaw of harmonization since the measurement tools which are being used to validate such theories are based on the personality approach. There is little evidence for deciding in favor of one or another measure, and it may lead researchers to select an inadequate scale or test for a specific population. We have found that researchers approaching entrepreneurial resilience as a trait applied scales measuring resilience from a cognitive-behavior perspective and vice versa, and this may explain inconsistency in the results. Some attempts to measure and to train resilience have a

comprehensive character; the same can be applied to training programs which encompass in the curriculum measures targeted to improve cognitive as well as social skills.

A further conclusion is that there is a considerable number of scales developed for measuring resilience, but they are not widely validated; best validated is the Connor and Davidson (2003) due to the frequent use of it which has caused a regular validation and adaptation.

It is still necessary to create a holistic scale which considers the complexity of entrepreneurial resilience from the psychological perspective and in a second state to generate a more comprehensive scale taking into account the eclecticism of the concept.

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The Use of IT Tools in Small Businesses in Poland



Magdalena Ratalewska

Abstract Small businesses, aware of the development trends prevailing in the market and the competition, have begun to use increasingly often the Web and its tools as a place of their business activity and to extend the scope of their activity through virtual reality. The small business sector can benefit a great deal by creating a modern work environment and communicating with the external environment. A higher level of effectiveness achieved with the use of technological tools and innovations is a key factor which, according to managers of companies from the SME sector, will determine who will succeed. The chapter is an attempt to analyze the type of IT tools used by small businesses and the level of their use. The analysis has been carried out based on the results of the survey (CATI) of 400 small businesses operating in Poland. The results indicate that the level of the use of IT tools in the surveyed companies depends to a large extent on the entrepreneurial attitude and skills of their managers. The range of tools used is wide and appreciated by managers of small businesses, but it still is not sufficient. The respondents see the need for using these tools as well as for the continuous development in this area. The problem is the cost of implementing these solutions and access to qualified advisory staff specializing in new technologies.

Keywords Small business · IT · Innovations · Entrepreneurship · Poland

1 Introduction

This chapter is an attempt to analyze the type and level of use of IT tools in small businesses in Poland. Small businesses, aware of the development trends prevailing in the market and the competition, have begun to use increasingly often the Web and

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its tools as a place of their business activity and to extend the scope of their activity through virtual reality.

The field of the author's scientific interests includes managerial competences of SME owners. In the modern economy, the area related to the exploitation of opportunities offered by IT tools is of particular importance. It is worth noting that electronic devices enabling the use of IT technologies have become an integral part of today's reality—and their number is steadily growing. On a global scale, it is estimated that the number of devices connected to the Internet in 2020 may exceed 26 billion. Tools based on IT technologies are used in various areas of enterprise management, including sales and purchases (e-commerce and other instruments), promotion (social media, web traffic analytics, etc.), obtaining information (databases, big data, etc.), and process management (CRM, EPR, and other areas). They are used with varying intensity, as managerial competences determine the intensity of their application. An original model for measuring the intensity of using IT tools in a small company is a starting point for the study.

The article describes the quantitative research made with the computer-assisted telephone interviewing technique (CATI) and was carried out on a group of 400 respondents—small enterprises operating in Poland. The research was conducted out in the second half of 2017. The main goal of the research described in the paper was to analyze determinants of the development of entrepreneurship and innovation in small businesses. The selection of the sample was random.

In the first part of the article, the author presents the definition of SMEs, which is followed by specificity of managing a small business. The author describes and analyzes the use of IT tools in those companies. In conclusion, the indispensability of their use, in order to be competitive in the market, is emphasized.

2 The Nature and Definitions of SMEs

Micro, small, and medium-sized enterprises are the most numerous group in the modern market economy. According to the research carried out by the Polish Agency for Enterprise Development in mid-2017, the vast majority of companies in Poland, as much as 99.8%, are micro, small, and medium-sized enterprises. The share of SMEs in generating GDP in recent years has been steadily growing and according to the latest available data has exceeded 50%. The SME sector is a workplace for 69% of employees working in enterprises and generates more than half (56%) of total revenues (Skowrońska and Tarnawa 2018).

In retrospect, it can be said that the 1970s and 1980s were a period of dynamic economic expansion of small entrepreneurship. In developed European countries, the economic strength of small and medium-sized enterprises was observed, and their important role in the national economy as one of the significant factors of socioeconomic growth was noted. According to Piasecki (2001, pp. 77–79), the reasons that have led to the current level of small business development include (1) the specific working conditions and atmosphere prevailing in small business

entities; (2) a lack of or weakness of trade unions in small businesses and the consequential low losses resulting from collective disputes or strikes; (3) various gradually introduced reforms aimed at supporting small entrepreneurship; and (4) the enrichment of society and the emergence of new, more individualized customer needs for services and products provided by small businesses.

Currently, there is no single universal definition of small and medium-sized enterprises in the world; this category is subjective and depends to a large extent on the structure of the country's economy. In most countries, quantitative and qualitative criteria are the most common method for distinguishing entities characterized by a small scale of operation (Lachiewicz and Matejun 2012). Quantitative criteria are based on absolute value measures, as they only use quantifiable values, such as the number of employees, the value of fixed assets, turnover, etc. and some relative size measures, such as the share of company sales in a given market. An important advantage of such an approach is the measurability, objectivity, and ease of the use of such indicators and the possibility of conducting statistical comparisons. According to Piasecki (1998, p. 86), the qualitative criterion takes into consideration such company features as its financial independence, the unity of ownership and management, its market share, or organizational structure. Łuczka (2001, pp. 236–237) included the “economic and legal independence of the owner, the characteristics of the social structure of the company determined by the owner, the distinctive type of the company's financial management, and the specific organizational structure” (Łuczka 2001, pp. 16–17). In the case of classification of business entities in accordance with the qualitative criterion, the membership in the SME sector is determined by the possession of the following characteristics: (1) decision-making independence and full responsibility of the owner for the company's liabilities; (2) financial management (to a large extent self-financing); (3) shaping the social structure of the organization by the entrepreneur; (4) sales focused on the needs of individual customers and a small market share; and (5) a simple organizational structure with a clearly defined center of power which is the owner.

Both qualitative and quantitative criteria significantly determine the functioning and development of the smallest economic entities. Currently, in the European Union, the leading role in the distinguishing of the SME category is played by a uniform, formal definition of small and medium-sized enterprises provided in the Recommendations and subsequently in the Regulation of the European Commission. Based on this definition, small and medium-sized entities are distinguished according to the following criteria: the number of employees, turnover and asset volume, as well as independence from other organizations. The details of the definition are presented in Table 1.

This definition entered into force on 1 January, 2005, and is currently mandatory for domestic and community assistance programs for SMEs. Its reflection in the Polish legal system is the definition of micro, small, and medium-sized entrepreneurs contained in Articles 104, 105, and 106 of the Act on the Freedom of Economic Activity. It should be emphasized that apart from the category of micro, small, and medium-sized enterprises, in the European Union, there is also a group of

Table 1 European criteria for the division of micro, small, and medium-sized enterprises

Criterion	Micro enterprise	Small enterprise	Medium-sized enterprise
Average annual employment in full-time equivalents	0–9 employees	10–49 employees	50–249 employees
Total net annual turnover	Not exceeding EUR 2 mln	Not exceeding EUR 10 mln	Not exceeding EUR 50 mln
Total sum of balance sheet assets	Not exceeding EUR 2 mln	Not exceeding EUR 10 mln	Not exceeding EUR 43 mln
Capital independence from other entities	Capital independence from other entities. In the case of specific capital ties, they should be taken into account when determining the level of employment and financial figures		

Source: Own elaboration based on: Annex I to the Commission Regulation 364/2004 of 25 February 2004. Brussels: UE Official Journal

self-employed people, i.e., persons conducting individual business activity but not employing employees (Lachiewicz and Matejun 2012).

The Regulation takes into account one more aspect, namely capital independence of SMEs from other entities, distinguishing autonomous, partner, and linked enterprises. According to the definition of the European Commission, the enterprise is autonomous if, firstly, it is a fully independent enterprise, i.e., it has no shares in other enterprises, and other enterprises do not hold shares in it; secondly, it has less than 25% of capital or votes (whichever is greater) in one or several other enterprises, and/or other enterprises have less than 25% of capital or votes (whichever is greater) in this enterprise.

3 Specificity of Small Businesses

As already mentioned, an entrepreneur is considered to be a small entrepreneur (*Freedom of Economic Activity Act 2004* (arts. 104, 105, 106). Warsaw: Official Journal) if in the previous financial year, the entrepreneur employed on average fewer than 50 employees per year and achieved annual net turnover from sales of company goods, products, and services as well as financial operations not exceeding the PLN equivalent of EUR 10 million, or the total assets of the company's balance sheet at the end of the previous financial year did not exceed the PLN equivalent of EUR 10 million.

The basic aspects of small business operations include job creation, structural change assurance, generation of innovations, and contribution to the integration of the national economy with the global economy. The specificity of small businesses is shaped naturally by the determinants that result from the size of this group of enterprises, including (1) legal and economic independence of the owner (which is the main criterion), allowing the company to implement the entrepreneur's own intentions at his/her own risk, without third-party controls; (2) determining the social

structure of the company by the owner; (3) the special nature of the company's financial management, manifesting itself in financing the company during its establishment from the owner's and his/her family's own funds, and in the further phase of its operation allocating a part of the profit for development, and a clear limitation on using credits and loans; and (4) the unique character of the organizational structure with one decision-making center in the person of the owner determining the form and content of all the basic functions of the enterprise (Piasecki 1998). Additionally, Lachiewicz and Matejun (2012) also mention the following: (1) High flexibility of operation and the ability to quickly respond to changes in the environment, which enables effective competition in the market even with stronger entities (in terms of resources and position). An important feature in this case is also the ability to provide services and manufacture products in accordance with the individual needs of customers. (2) A network of personal contacts with business partners and relative openness to the environment (organizational porosity) (Lachiewicz and Matejun 2012).

Nevertheless, it should be remembered that a "small company is not just a miniature of a large enterprise" (Smallbone et al. 1992, p. 2). The motives and goals of its operation, the cultivated values, and the concept of success—these are the features that distinguish these entities from other companies. This difference stems from several reasons: their weaker market position, greater susceptibility to changes in the environment, the need to adapt faster to changing external conditions, or a different structure of goals and motives of undertaken actions reflecting the personal qualities of the owner/manager of the company. Limited resources (especially financial resources and the management potential), "the unity of ownership and management, and limited possibilities of influencing the shape of the external environment" (Piasecki et al. 1999, p. 123), combining the functions of the company owner and its manager, the financing method that is usually not related to the capital market, a low degree of formalization of tasks and high flexibility of the organizational structure, as well as targeting an individual and not a mass customer mean that small enterprises create a specific group of entities which in many areas of operation is fundamentally different from large enterprises (Sidor-Rzadkowska 2004).

In small businesses, the perception of success can also have a specific character. Success is usually determined by a combination of circumstances difficult to verify. It is a derivative of the entrepreneurial characteristics of the owners and market conditions that allow the company to avoid serious threats and relatively easily take advantage of favorable circumstances (Laszczak 2004, p. 18). Success of small enterprises falls into a very subjective category and can be perceived differently by their owners. For some, success will be shaping the workplace and achieving the set income. For others, it will be getting rich, obtaining prestige, and deriving satisfaction from running an independent business (Haus 2004, p. 67). The owner's actions are determined by personal motivations which include satisfaction, social position, material security of the owner and his or her family, being independent, as well as the desire to develop and implement his or her own ideas.

The small business sector shows high creativity and flexibility in terms of adapting to changing economic conditions and is characterized by constant anxiety

reflected in action (Marjański 2006, p. 30). It has a significant impact on the economic development of the state and also allows for the implementation of a number of goals that cannot be achieved by large corporations (Duraj and Papiernik-Wojdera 2010, p. 30).

4 Data and Methodology

As already mentioned in the introduction of the article, quantitative research made with the computer-assisted telephone interviewing technique (CATI) was carried out on a group of 400 respondents—small enterprises operating in Poland. The research was carried out in the second half of 2017.

The main goal of the research described in the paper was to analyze determinants of the development of entrepreneurship and innovation in small businesses. The detailed objectives of the research concerned (1) determining the motives behind starting a business; (2) identifying methods to improve the skills and knowledge of managers; (3) investigating the type of innovations introduced by companies; (4) exploring the forms, scope, and areas of public support in the development of companies; and (5) analyzing the use of IT and Internet tools in small businesses—which is the subject of this paper.

The following assumptions were made in the research: (1) a CATI questionnaire will be used; (2) the population of small innovative enterprises will be examined (number ≤ 10 to 50 employees); (3) the study will concern understanding determinants of the development of entrepreneurship and innovation in small businesses; and (4) the study will investigate the state at the end of 2017 and changes occurring over the last three years (2015–2017).

The selection of the sample was random. Randomly selected respondents were asked whether they met two selection criteria. Only enterprises that met each of the criteria were included in the research sample. The first criterion: the enterprise belongs to a group of small enterprises, i.e., employing at the end of June 2017 from 10 to 49 people. The second criterion: the surveyed enterprise is an innovative entity, i.e., in the years 2014–2017 introduced at least one change referring to the implementation of new or modernization of existing products/services, or the implementation of new or modernization of the existing technical method of production/provision of services. The sampling frame used for the study was a database of companies employing from 10 to 49 people containing over 50,000 entities. From this database, every 10th entity was randomly selected for the study using the CADAS system. In total, 20,000 entities were selected to participate in the study. Finally, 19,402 enterprises were examined. There were 3793 companies non-compliant with the criteria and 4352 refusals to participate in the study. Finally, 400 fully completed questionnaires were obtained.

5 The Areas of the Use of IT Tools in the Surveyed Companies

The owners of the surveyed enterprises when asked about the areas of activity in which they use IT tools (such as electronic transaction systems, dedicated software used for various activities within the company and for communication with external partners) and/or online tools (such as their own and shared online stores, auction portals, or portals such as Allegro, eBay, Facebook, Instagram, Snapchat, etc.) were given the following options to choose from: (1) sales—the application of the abovementioned tools as part of concluding sales transactions related to the company’s services/products; (2) purchases—the application of the abovementioned tools in the enterprise’s purchase of services and products from other companies and external institutions; (3) business management support—the use of broadly understood IT tools such as sales record management systems, HR systems, accounting systems, etc. and online tools, such as cloud software, among others, in project management, data storage, and sharing; (4) collecting market information—the application of the abovementioned tools in searching for customer data, their preferences, opinions, market size, decision criteria, etc.; for this purpose, IT software (customer analysis software, purchase statistics, etc.) as well as Internet services may be used, among others, website traffic statistics, software for information dissemination analysis, etc.; part of this activity may be obtaining customer opinions through social networking sites and collecting opinions about products/services; and (5) company promotional activities and communication with customers, i.e., the application of the abovementioned tools within the scope of advertising activities, in particular online advertising (advertising on company websites, advertising on other entities’ websites, search engine positioning, social media advertising, etc.) as well as other activities on social networking sites (Facebook, Instagram, Twitter, etc.). Details are presented in Table 2.

The surveyed respondents most often, as much as 80% of responses, use IT and/or Internet tools for promotional activities, followed by collecting market information—77%, business management support—72%, and purchases—70%. Among the analyzed enterprises, 57% of entities use IT and/or Internet tools to

Table 2 The areas of activity in which IT and/or Internet tools are used

	IT and/or Internet tools			
	Yes		No	
	No. of responses	%	No. of responses	%
Sales	228	57%	172	43%
Purchases	280	70%	120	30%
Business management support	287	72%	113	28%
Market information collection	309	77%	91	23%
Promotional activities	321	80%	79	20%
Other	43	11%	357	89%

Source: Own elaboration

Table 3 Types of sales platforms used to sell products and services of the surveyed companies

	Sales			
	Yes		No	
	No. of responses	%	No. of responses	%
Online company store	62	16%	338	84%
Universal Internet platforms	55	14%	345	86%
Specialized Internet platforms	67	17%	333	83%

Source: Own elaboration

sell their products and services. As other areas are not mentioned in the questionnaire, managers indicated CRM systems, platforms for sending documentation, information systems supporting design and production, as well as participation in thematic teleconferences and symposia.

The surveyed respondents were also asked about the type of sales platforms used to sell their products and services and had the following options to choose from: (1) online company store—sales through its own company website, its own dedicated online store, or an online store run jointly by a group of (several) entrepreneurs; (2) universal Internet platforms—sales through platforms such as Allegro, e-Bay, and OLX, which mediate the sale of various products and services; and (3) specialized Internet platforms (dedicated to a given industry or product group)—sales through platforms that are dedicated to a selected group of products/services. The specialization may concern, for example, the sale of cars and similar products in the case of “moto.gratka.pl” service, or in the case of handicrafts—“art-madam.pl.” Details are presented in Table 3.

17% of respondents use specialized Internet platforms, 16% their own online company stores, and 14% universal sales platforms.

The surveyed respondents were asked to estimate the scope of sales conducted through individual sales channels on a scale of 1 to 10, where 1 means “we use this type of sales channel to a small extent” and 10 “this is our exclusive sales channel” (see Table 4).

As can be seen from the above-presented data, only a few of the surveyed respondents decided to conduct their sales exclusively online. Only 2% of enterprises have only an online store, 5% sell their products and services only via universal Internet platforms, and 9% use only specialized Internet platforms. The vast majority of the analyzed companies, therefore, treat e-sales as an additional distribution channel.

Moderate growth at the level of 14% was recorded by enterprises having their own online store, at the level of 16% by those using universal Internet platforms, and at the level of 12% by enterprises using specialized Internet platforms, which may indicate an increase in the interest of small businesses in online sales. Their managers seek to follow the current trends and development of sales platforms (see Table 5).

88% of respondents have their own website, which is surprising, as it means that still 12% of them operate without it, which in the era of development of remote

Table 4 The scope of sales conducted through individual sales channels

1–10 scale	Online company store		Universal Internet platforms		Specialized Internet platforms	
	No. of responses	%	No. of responses	%	No. of responses	%
1	13	21%	13	24%	6	9%
2	9	14%	9	16%	6	9%
3	5	8%	5	9%	9	13%
4	5	8%	5	9%	6	9%
5	6	10%	7	13%	13	19%
6	2	3%	7	13%	3	5%
7	11	18%	3	5%	6	9%
8	6	10%	2	4%	9	13%
9	4	6%	1	2%	3	5%
10	1	2%	3	5%	6	9%
Total	62	100%	55	100%	67	100%

Source: Own elaboration

Table 5 Trends in sales by sales channel in the period 2015–2017

	Online company store		Universal Internet platforms		Specialized Internet platforms	
	No. of responses	%	No. of responses	%	No. of responses	%
Significant decline in the share of this sales channel	3	5%	1	2%	2	3%
Moderate decline in the share of this sales channel	24	39%	21	38%	32	48%
No change	26	42%	24	44%	25	37%
Moderate increase in the share of this sales channel	9	14%	9	16%	8	12%
Significant increase in the share of this sales channel	–	–	–	–	–	–
Total	62	100%	55	100%	67	100%

Source: Own elaboration

business communication is quite a high result. 37% of enterprises have a company account on Facebook and 33% place ads on websites and portals of other companies (see Table 6).

The surveyed respondents were asked about the scale of using the website for company promotion (where 1 means “we use the website to a small extent” and 10 “this is our exclusive promotion channel”), and their responses show stable differentiation. Among the respondents, there are companies that do not use their websites for promotion as well as those that see a great potential in this method of promotion and treat their websites as a promotional element of communication with customers (see Table 7).

Table 6 Methods of communication with customers online

	Methods of communication with customers online			
	Yes		No	
	No. of responses	%	No. of responses	%
Website	351	88%	49	12%
Social media account (e.g., FB, Twitter)	149	37%	251	63%
Ads placed on websites/portals of other companies	132	33%	268	67%

Source: Own elaboration

Table 7 The use of the website to promote the company

1–10 scale	No. of responses	%
1	25	7%
2	25	7%
3	33	9%
4	25	7%
5	63	18%
6	23	7%
7	37	11%
8	66	19%
9	26	7%
10	28	8%
Total	351	100%

Source: Own elaboration

Table 8 Propensity of using the website for promotional activities in the period 2015–2017

	No. of responses	%
Significant decline	3	1%
Moderate decline	11	3%
No change	197	56%
Moderate increase	104	30%
Significant increase	36	10%
Total	351	100%

Source: Own elaboration

56% of respondents asked about the propensity of using the website for promotional activities in the period 2015–2017 did not observe any difference in this area, moderate growth of such activities was recorded by 30% of enterprises, and 10% definitely increased their activities aimed at using their own website for promotional activities (see Table 8).

The number of companies using social networking sites for promotional activities, understood as placing posts, messages, photos, reportages on Facebook, Twitter, Instagram, YouTube, Snapchat, etc. that are supposed to, e.g., popularize the image of company own brand, be used for the company's product/services

Table 9 The use of social networking sites to promote the company

1–10 scale	No. of responses	%
1	7	5%
2	19	13%
3	12	8%
4	15	10%
5	9	6%
6	22	15%
7	12	8%
8	9	6%
9	26	17%
10	5	3%
11	13	9%
Total	149	100%

Source: Own elaboration

Table 10 Trends in the use of social networking sites for promotional activities in the period 2015–2017

	No. of responses	%
Significant decline	1	1%
Moderate decline	4	3%
No change	62	42%
Moderate increase	50	33%
Significant increase	32	21%
Total	149	100%

Source: Own elaboration

placement, and build a positive company image, is also distributed quite evenly. Among the surveyed enterprises, there are those that use social media for promotion to a small extent and those for whom it is the exclusive promotion channel (see Table 9).

42% of respondents asked about trends in the use of social networking sites for promotional activities in the period 2015–2017 did not observe any difference in this area, moderate growth in such activities was recorded by 33% of enterprises, and 21% definitely increased their efforts to use social networking sites to promote their companies. The importance of social media in contacts with customers is constantly growing and small enterprises with limited budgets are willing to use this form of promotion, especially entities that have their own online store (see Table 10).

The number of enterprises conducting promotional activities with the use of advertisements on websites/portals of other companies, i.e., placing ads on Internet portals (e.g., *Onet*, *Wirtualna Polska*, *Interia*, and the online editions of nationwide or specialist press) and on other companies' websites (industry portals, local/regional portals), or positioning their own websites in search engines shows the distribution indicating the tendency to choose the extreme and middle options on a 1 to 10 scale, where 1 means "we use websites for promotion to a small extent" and 10 "this is the exclusive promotion channel" (see Table 11).

48% of respondents asked about trends in the importance of advertising on websites/portals of other companies for promotional activities in the period

Table 11 The importance of placing ads on websites/portals of other companies for the promotion of the enterprise

1–10 scale	No. of responses	%
1	15	11%
2	10	8%
3	9	7%
4	11	8%
5	24	18%
6	17	13%
7	11	8%
8	16	12%
9	2	2%
10	17	13%
Total	132	100%

Source: Own elaboration

Table 12 Trends in the importance of placing ads on websites/portals of other companies for promotional activities in the period 2015–2017

	No. of responses	%
Significant decline	5	4%
Moderate decline	63	48%
No change	39	29%
Moderate increase	15	11%
Significant increase	10	8%
Total	132	100%

Source: Own elaboration

2015–2017 noted a moderate decline, 29% did not observe any difference, while a moderate increase was noted by 11% of enterprises, and only 8% definitely increased the number of advertisements on other companies' websites and portals (see Table 12).

The economic policy, pursued by the country, plays a very important role in the support and development of MSP companies which use IT tools. In crude terms, the state policy may be active or passive, interim or ordered, and short- or long-term. It is important, though, for it to be thoughtful and consistent. For MSP enterprises a legitimate and legible state policy means lowering the transactional costs, thus those of economic activities. It is also inevitable to pursue well-thought-out plans or programs of such support; otherwise, they are worthless. In order to support MSP, it becomes essential to orient the state policy on enhancing competitiveness of Polish enterprises, so that they can compete in the European market independently.

6 Conclusions

Enterprises from the SME sector are compliant with the requirements of the information society which expects modern IT solutions from these entities. Practice shows that the skillful use of modern Internet technologies has become almost indispensable in creating lasting relationships with customers and building a

competitive advantage. There is no doubt that the digitalization of small businesses has increased, but the pace of change is still unsatisfactory. Digitalization and modern technologies in the field of IT and/or Internet tools are more often introduced by large enterprises than small ones. Small businesses have better results, among others, in the implementation of e-business solutions but still, according to the research results obtained, only 57% of enterprises use sales platforms. The surveyed enterprises are more likely to make purchases (70%) than sell their products and services online. Greater interest of managers is focused on the use of new technologies in business management support (72%) and collecting market information (77%). The surveyed enterprises most often use IT and/or Internet tools for promotional activities (80%), seeing in this the chance of acquiring customers and, consequently, a larger share of sales. Comparing the data obtained in the study with the data included in the Polish Agency for Enterprise Development report on the state of digitalization in 2017, it can be seen that 88% out of the surveyed 400 enterprises have a website, where the Agency's results indicate 67% of enterprises. The number of enterprises using social media is also higher, at the level of 37%, where according to the Agency one in four companies (26%) uses social media in its activities. However, this does not change the fact that in 2017, in terms of the digital economy and digital society index (Digital Economy and Society Index, DESI), Poland ranked 23rd in the group of 28 EU Member States (Skowrońska and Tarnawa 2018, p. 6).

The undeniably rapid spread of the Internet as a relatively cheap, easily available, modern, profitable, and useful business platform prompts many enterprises from the SME sector to invest in various forms of e-business technologies. However, it should be emphasized that these enterprises must be adequately prepared to conduct such activities. The introduction of remote solutions should be consistent with the vision of the company's operations and be in line with the will of the manager who runs it, as evidenced by the conducted research. The direction of the company's development depends on the entrepreneur's creativity and openness to novelty.

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Innovative Behaviour as a Determinant of Growth and Development of Small Enterprises



Renata Lisowska

Abstract Small enterprises operating under conditions of uncertainty ought to introduce innovative solutions oriented towards their growth and development. As numerous studies indicate, small businesses are gradually intensifying their efforts to increase their ability to implement innovative changes. The aim of the chapter is to assess the impact of small enterprises' propensity for innovative behaviour on their growth and development. Therefore, the following research hypothesis was formulated: *A strong orientation of small enterprises towards innovative behaviour has a positive impact on their growth and development.* To achieve the aim of the chapter, research was conducted among 400 small innovative enterprises in Poland by means of a survey questionnaire, using the CATI and CAWI techniques, in the period December 2017–January 2018. Based on the results of the research, the following conclusions were drawn: (a) the surveyed enterprises were characterised by strong orientation towards innovative behaviour; (b) the surveyed entities were characterised by very strong and strong development orientation, which may have resulted in the improvement of the performance of these entities in the form of growth mainly in such areas as productivity, sales, employment, and profits; and (c) there is a positive impact of the company's strong orientation towards innovative behaviour on its development.

Keywords Innovative behaviour · Small enterprises · Growth process · Factors of enterprise growth and development

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1 Introduction

In order to meet strong competition, modern small enterprises operating under conditions of complexity and uncertainty ought to introduce changes of an innovative nature, innovative solutions oriented towards their growth and development. As numerous studies (e.g. Stawasz 2019; Zastempowski 2013; Mazarol 2011; Forsman and Rantanen 2011) indicate, small businesses are gradually intensifying their efforts to increase their ability to implement innovative changes. The undertaken actions include (a) participation in the innovation market by reporting the need for new ideas, concepts and solutions; (b) treating knowledge and skilful management as factors of enterprise growth and development, as well as using knowledge of the company and its environment as a strategic resource (knowledge of employees, customers, competitors, etc.); (c) constant focus on the development of intellectual capital, primarily human resources characterised by qualifications and skills valuable for the company; (d) constant improvement of business standards with regard to the company's internal activities as well as relations with the market, i.e. customers, business partners, suppliers, and competitors; and (e) focus on the development of innovative awareness.

One of the key problems for today's small businesses is stimulating innovation and change. In this context, the growing importance of innovative behaviour, closely related to the creation and implementation of innovation and concerning both employees and managers, can be seen. The research conducted so far in the world and in Poland regarding innovativeness of small enterprises is fragmentary due to the fact that studies are focused mainly on assessing the level of innovativeness and innovative capacity as well as supporting innovative activity of these entities. The literature lacks current research on the impact of innovative behaviour of small enterprises on their development. Therefore, the aim of the chapter is the analysis of the impact of small enterprises' propensity for innovative behaviour on their growth and development. Hence, the following research hypothesis was put forward: *A strong orientation of small enterprises towards innovative behaviour has a positive impact on their growth and development.*

The first part of the chapter discusses the essence of innovative behaviour of small enterprises with a particular emphasis on the specificity of the functioning of these entities and then indicates the main determinants of the growth and development of small businesses. The second part presents the research methodology and characteristics of the research sample. The last part of the chapter presents the results of the research carried out on a sample of 400 small innovative enterprises operating in Poland. The main conclusions are indicated in the last part of the chapter along with research limitations, and directions of further research are also proposed.

2 The Innovative Behaviour and Development of Small Enterprises: Literature Review

The characteristics (quantitative and qualitative ones) and the specificity of the functioning of small businesses provide the framework for the competition strategies chosen. Formulating strategies in these entities is often focused on reducing costs and increasing the quality of products and services offered based on introduced innovative changes. Innovation is therefore treated as one of the key factors determining the acquisition and maintenance of competitive advantage in the market and often as a prerequisite for the survival and development of the company through a rapid response to changes occurring in the broadly understood environment (Lisowska 2018; McKelvie and Wiklund 2010). The environment, through its interactive impact, has a significant influence on the functioning of enterprises, including small ones. In general, the company's environment is the external environment of its operation. It covers all the determinants and mutual dependencies of various elements: spheres, phenomena, processes, trends, events, and entities that are not part of the company's organisational system and remain outside its direct control, but which influence the company and/or are influenced by it (Lachiewicz and Matejun 2016). The environment can be divided into the macro, meso, and micro environment (Rauch et al. 2017; Lisowska 2013), taking into consideration its dynamics, complexity and uncertainty, or other features (Wach 2008). The dynamics of the environment is mainly caused by rapid technical and technological development, globalisation, and strong competition, often taking the form of hyper-competition (Chen et al. 2010), as well as by the increase in the importance of knowledge and intangible sources of generating enterprise value. Consequently, the growing complexity of changes and their faster pace generate unpredictability of the environment and the related uncertainty, which in turn requires seeking new ways of doing things that will allow companies to reduce these negative phenomena (Zakrzewska-Bielawska 2017).

Therefore, small enterprises are intensifying the efforts aimed at increasing their ability to create innovative products or organisational solutions in order to improve their competitive position. The actions taken can be seen as innovative behaviour oriented towards introducing a range of new or improved products or services offered by an enterprise, as well as new or improved production methods or methods of service provision along with improved organisational methods (Lisowska 2018).

The innovative behaviour of small businesses is closely related to the organisational culture of these entities and their strategy of operation (Szymańska 2016). An enterprise whose main goal is survival and development as well as creating customer value should comprehensively manage innovations. Its activities should be therefore aimed at defining the innovation strategy as well as building a flexible organisational structure enabling innovative activity and openness of the organisational culture conducive to creating innovative behaviour among its managers and employees. Thus, the management of innovations in small businesses requires the initiating of a learning process supported by the exchange of experiences

related to successes and failures within the company and with its environment, the use of appropriate tools and techniques, and building a cooperation network (Białoń 2010), as well as actions targeted at improving the innovativeness of these entities by focusing on the development of dynamic capabilities and the identification of market opportunities. Dynamic capabilities may become a source of a temporary competitive advantage, among others, through the manufacturing of distinctive products, the development of new markets, and the reconfiguration of resources. The objective of these activities is increasing the speed and degree of identifying new market opportunities.

A chance and an opportunity are two different concepts, due to the fact that a chance is connected with the probability of the occurrence of a favourable situation, whereas an opportunity is a planned or existent favourable situation (Krupski 2013). The concept of an opportunity is seen as ambiguous and controversial because of the problem of objectivity of determining the actual existence of an opportunity. According to Alvarez and Barney (2007), opportunities exist objectively, and entrepreneurs are tasked with discovering them before their competitors. They also believe that opportunities should be created through an innovative approach to resources and creative decisions. An opportunity is perceived as a transaction which, in comparison with other transactions, will bring the enterprise greater value with the same degree of probability or the same value with a higher degree of probability (Krupski 2011).

The emergence of new market opportunities results from changes in customers' needs, expectations, and preferences. Opportunities appear and can be exploited or can go unnoticed. Unexploited opportunities usually do not reappear; therefore, it is important for entrepreneurs to possess the ability to identify and exploit them. This means that the company needs to be able to adapt to both immediate and more distant environment. The development of the environment generates external opportunities, while internal opportunities are created by company employees (Falencikowski 2017).

These opportunities can be used to permanently transform knowledge and ideas into new products, processes, and systems creating the company's innovation capabilities (Teece 2008). According to Lawson and Samson (2001), innovation capabilities encompass the following areas: the company's vision and strategy, competence base, information system and organisational intelligence, customer orientation, knowledge management (creativity and ideas), technology management, organisational systems and structures, organisational culture, as well as atmosphere in the organisation. These areas can have a diverse impact on the creation and implementation of innovation (Zastempowski 2013). Innovation management therefore requires building internal and external innovation capacity. The development of internal innovation capacity refers to the development of skills of both managerial staff and other employees in the field of knowledge creation and implementation of innovative solutions, formulation of innovation strategies, as well as building organisational structures and culture conducive to the creation and absorption of innovation or employee inventiveness (Zastempowski 2013). Building external innovation capacity includes networking with science and technology, market

partners in the field of innovation, and using public support for innovation (Ratalewska and Stawasz 2016). According to Forsman (2009), in small-scale companies, there are 5 types of innovation capabilities:

1. *Entrepreneurial*—characterised by the ability to identify opportunities, risk propensity, the ability to crystallise goals, and knowledge for balancing opportunities with resources.
2. *Networking*—relationship orientation, openness to learning through networks, the ability to internalise partners' knowledge, as well as build and maintain trust between partners.
3. *Current knowledge*—it strengthens the ability to modify and adapt external knowledge and facilitates its transformation into new combinations of knowledge.
4. *Managerial*—management skills and leadership.
5. *Organisational*—flexibility and speed of action in introducing change under the conditions where demand drives processes and innovative culture is recipient oriented.

In addition to innovation capabilities and innovative behaviour, the innovativeness of small enterprises is dependent on their innovative motivation, defined as a mechanism of accepting novelties, generating the attitude of these entities towards implementing innovations (Ratalewska and Stawasz 2016). The level of innovative motivation is influenced by the following determinants: determinants derived from the immediate and more distant environment (competition, stakeholders), organisational and social determinants (strategy, organisational culture), as well as psychological determinants (e.g. the attitude to change, entrepreneurial behaviour). Innovative motivation stimulates innovative activity, which is treated as a special instrument ensuring enterprise growth and development.

The process of enterprise development consists of targeted changes in which the sequential stages of transformation can be identified. These changes can be of diverse nature, both positive and expected as well as negative. In this context, the management of development consists in prolonging positive changes and shortening the period of negative changes or eliminating them altogether (Matejun 2015). The terms enterprise “growth” and “development” are used interchangeably in the national and international literature. The growth of the enterprise is a quantitative category concerning mainly an increase in its size, in terms of the number of employees, sales volume, and market share (Gancarczyk 2017), or the level of diversification and vertical integration. There exists a feedback relationship between growth and development, while development, as a qualitative category, is associated with increasing the company's competences (e.g., concerning the introduction of innovative changes, creating customer value) (Lisowska 2015), there is not always a dependency related to enlarging its size (Davidsson et al. 2006; McKelvie and Wiklund 2010). The growth of the enterprise is based on the use of existing competencies, i.e. expanding the company by incorporating those resources, products, and services that demonstrate the relationship with its existing key capabilities and arise

as a result of the new application of the company's existing potential (Gancarczyk 2017).

The development of small enterprises is influenced by the entrepreneur's behaviour, including innovative behaviour determined by biographical, behavioural, and relational characteristics. In the biographical approach, developmental factors include age, gender, knowledge, the profile of education, and business experience. The biographical approach encompasses the propensity for taking risks, motivation, innovativeness, the desire for achievement, diligence, etc. In the behavioural approach, the driving force of development processes is seen in the attributes of the entrepreneur according to the patterns of entrepreneurial behaviour (e.g., work style, the attitude to opportunities and changes, the willingness to innovate, managerial skills, the attitude to risk). The relational approach is mainly based on the attitude to risk, creativity, leadership, opportunities, etc. (Bławat 2004; Lisowska 2018). There are interactions occurring between the personal characteristics of the entrepreneur, which may contribute to the independent actions of the entrepreneur acting on his or her own initiative and in the perspective of enterprise development. The development of the enterprise can be intentional or accidental, spontaneous or forced, continuous or stepwise (Bławat 2004; Steffens et al. 2009), and it is treated as an orderly and timely process that can be analysed in the context of the achieved state and its stages (Machaczka 1998).

Wasilczuk (2005, pp. 130–132) has proposed a dynamic growth/development model of small and medium-sized enterprises which identifies the following groups of factors that influence enterprise growth/development:

- Initial processes (i.e. the selection of industry, legal status, company size and location).
- The enterprise's resources which are dependent on the competences of the owner and initial processes.
- The competences of the owner-manager constituting a key element of the whole system (the perception of possibilities for the company's development as well as opportunities and risks presented by the environment, and the results achieved depend on these competence).
- Growth opportunities (actual and perceived by the owner).
- Company objective, strategy, and management
- The real environment and the subjective environment perceived by the owner.

Summing up the previous considerations, in order to survive and develop, small enterprises should introduce changes of an innovative nature. The innovative behaviour of these entities allows them to make decisions in the field of innovative activity and achieve streamlining and modernisation of processes, increased efficiency and quality of processes, better adaptation to the environment, increased quality of products and competitiveness of their sales, elimination of barriers and activation of resources, increased efficiency and effectiveness of operation, streamlining work organisation and working methods, improvement of working conditions and safety, as well as increased export capabilities and a better possibility of accomplishing strategic goals (Bogdanienko 2004; Skowronek-Mielczarek and Bojewska 2017).

3 Research Methodology and Characteristics of the Research Sample

The research was carried out in the period November 2017–January 2018 using the CATI and CAWI techniques among 400 small innovative enterprises. An innovative enterprise is an enterprise which in the last three years has introduced changes in its products, services, production, or organisational methods. These changes may include the introduction of new or improved products or services offered by a given enterprise, the introduction of new or improved production methods or methods of service provision in a given enterprise, and the introduction of new or improved organisational methods. In the first stage of the study, 20,000 small enterprises (employing 10–49 persons) were selected, among which further 8000 companies were selected on the basis of a screening question. The sampling of entities was done proportionally to the number of small businesses in a given voivodship to ensure territorial representativeness. Thus, conducted proportional allocation of the sample was the optimal solution providing the opportunity to generalise the conclusions for the entire population. The size of the sample was determined with a large excess due to the fact that with the chosen research techniques obtaining a response to the questionnaire would be possible only from some of randomly selected entities. The population comprised business entities belonging to a group of small innovative enterprises, selected on the basis of a screening question classifying enterprises as innovative ones. The realised sample size, i.e. the number of received, completed questionnaires, amounted to 400. In order to assess the representativeness of the realised sample, its structure was compared to the structure of the general population of small enterprises in Poland. The result of the conducted comparison allowed the sample to be considered as representative.

The surveyed small businesses were mostly service enterprises—45.7%, manufacturing enterprises—39.3%, and less often commercial enterprises—15.0%. Mature companies existing in the market for over 10 years dominated in the analysed sample, constituting 72% of the surveyed population, while young companies with up to 3 years of market existence constituted only 4.3%. In the spatial market structure of the surveyed enterprises, the domestic market prevailed—40.8%, followed by the regional market—31.4%, and the international market constituting the smallest share of 27.8%.

Another research area concerned the nature of introduced innovative changes. The analysis of the results obtained has highlighted the low degree of novelty of innovative solutions implemented in the surveyed entities, as for 56% of enterprises the introduced solutions were new at the level of the company or the region, and only for 13% were novelties at the level of the international market. This is also confirmed by numerous studies (Lachiewicz and Matejun 2016; Zastempowski 2013; Forsman and Rantanen 2011; Bogdanienko 2004) which show that small businesses mainly introduce incremental innovations and much less often innovations of a breakthrough nature. The analysis of the degree of novelty of innovative changes

Table 1 The nature of introduced innovative changes by the age of the enterprise

The nature of introduced innovative changes	Age (no. of years of operation in the market)		
	0–3 years (%)	3–10 years (%)	More than 10 years (%)
New only for the company	41.2	11.1	7.6
New for the local market (voivodship)	23.5	17.0	8.9
New for the domestic market	11.8	26.9	20.2
New for the international market	7.8	14.0	34.0

Data for 400 enterprises

Source: The author's own compilation

Table 2 The nature of introduced innovative changes by the range of the enterprise's market activity

The nature of introduced innovative changes	The dominant range of market activity			
	Local (poviat area) (%)	Regional (voivodship area) (%)	Domestic (%)	International (%)
New only for the company	41.8	35.0	31.1	26.6
New for the local market (voivodship)	47.8	50.0	11.6	11.0
New for the domestic market	10.4	11.7	50.0	26.6
New for the international market	0.0	3.3	7.3	35.8

Data for 400 enterprises

Source: The author's own compilation

introduced according to the age of the surveyed enterprises shows (see Table 1) that the latest solutions are implemented on an international scale by mature companies with more than 10 years of market existence (34.0% of responses) and innovative solutions on the smallest scale of novelty are introduced by young companies operating in the market for 0–3 years (41.2% of responses).

The analysis of the degree of novelty of introduced innovative changes according to the range of market activity indicates (see Table 2) that the latest solutions are implemented on an international scale by enterprises operating in the international market (35.8% of responses), and solutions characterised by the smallest scale of novelty, at the company level, are introduced by enterprises operating mainly in local and regional markets. (89.6% and 85.0% responses, respectively).

4 Research Results

The first area of the conducted analysis was the assessment made by the surveyed enterprises of their attitude to introducing novelties in the company. Respondents made the assessment on a 1–5 scale, where 1 was low and 5—high orientation focused on introducing novelties in the company. The analysis of the obtained responses indicates a high level of orientation focused on the introduction of novelties in the company—74.8% of responses (36.8%—high, and 38%—very high orientation); the average rating was 4.03.

In the next stage of the survey, respondents assessed the ability of the analysed enterprises to design and implement novelties. The assessment was made on a 1–5 scale, where 1 was a low level and 5 a high level of skills for designing and implementing novelties in the company. The analysis of the obtained data indicates a moderate and high assessment of the ability of the surveyed enterprises to design and implement novelties, i.e. 40.3% of respondents rated this ability as moderate and 28.7% as high; the average rating was 3.69.

The surveyed enterprises also assessed the degree of monitoring the environment for the purpose of introducing novelties into the market. The assessment was made on a 1–5 scale, where 1 was a low degree and 5 a high degree of monitoring the environment to launch new products/services onto the market. The conducted analysis of the obtained data indicates a high and very high rating in the analysed area; i.e. 44.0% of respondents assessed the degree of monitoring the environment for the purpose of introducing novelties into the market as high and 25.8% as very high; the average rating was 3.81.

In the next stage of the survey, respondents assessed the level of cooperation with business partners (e.g. other companies, suppliers, business environment institutions, universities, customers, public administration units) in order to introduce new products/services into the market. The assessment was also made on a 1–5 scale, where 1 was a low level and 5 a high level of cooperation with business partners. The analysis of the obtained data indicates moderate and high ratings in the studied area; i.e. 35.5% of respondents rated the cooperation as high and 23.5% as moderate; the average rating was 3.45.

The surveyed entities also assessed the degree to which the atmosphere in their company was conducive to the development of innovation (trust, error acceptance, creativity). The assessment was made on a 1–5 scale, where 1 was an unfavourable atmosphere and 5 was a very favourable atmosphere in the company for the development of innovation. The conducted analysis of the obtained data indicates a high and very high assessment of the atmosphere conducive to the development of innovation in the company; i.e. 43.8% of respondents rated the atmosphere as favourable and 29.0% as very favourable; the average rating was 3.94.

Another area of analysis was the assessment of the surveyed enterprises' development orientation. The assessments were made on a 1–5 scale, where 1 was a low level and 5 was a high level of development orientation. The conducted research indicates that the surveyed enterprises are strongly and very strongly

Table 3 Company performance indicators resulting from enterprise development^a

	First choice (%)	Second choice (%)	Third choice (%)
Increased productivity	30.5	11.1	7.6
Increased sales/turnover	21.3	17.0	8.9
Increased employment	16.8	26.9	20.2
Increased profits	7.8	14.0	34.0

Data for 400 enterprises

Source: The author's own compilation

^aRespondents indicated three answers according to their importance as the first, second, and third choice, which meant the most important, very important, and important manifestation of their development orientation

development-oriented (39.2% and 35.8% of responses, respectively); the average rating was 4.02. This partly stems from the selection of the sample that includes innovative companies, i.e. ones focused on introducing changes of an innovative nature. The surveyed respondents also expressed their opinion on the development of the surveyed enterprises in the perspective of the next 3 years (2015–2017). The obtained results confirm the surveyed entities' strong and very strong development orientation in the perspective of the next three years (39.0% and 39.3%, respectively); the average rating was 4.07.

The conducted research also encompassed the surveyed respondents' assessment of the impact of the current development of the company on its performance measured by the following variables: increase in productivity, increase in sales/turnover, as well as increase in employment and profits (see Table 3). Increase in profits (78.1% of responses) and increase in employment (14.8% of responses) were seen as the most important and indicated in the first place by respondents. The following were considered very important and indicated as the second choice: increase in productivity (33.8% of responses) and increase in sales/turnover (35.8% of responses). Those development manifestations were considered important and mentioned as the third choice: increase in profits (34.0% of responses), increase in sales/turnover (27.8% of responses), and increase in employment (23.0% of responses).

Another area of analysis was the respondents' identification of the three most common manifestations of the development of their enterprises according to their importance indicated as the first, second, and third choice, which meant the most important, very important, and important manifestation (see Table 4). The most important development manifestations—indicated as the first choice—included production modernisation (30.5% of responses), increase in the scale of operations (21.3% of responses), and quality improvement (16.8% of responses). The respondents considered as very important the following manifestations of development—indicated as the second choice: quality improvement (26.9% of responses) and increase in the scale of operations (17.0% of responses). The following manifestations of development were seen as important and therefore indicated as the third choice: quality improvement (20.2% of responses), cost reduction (19.4% of responses), and the identification of market opportunities (16.8% of responses).

Table 4 Manifestations of the enterprise’s development^a

	First choice (%)	Second choice (%)	Third choice (%)
Production modernisation	30.5	11.1	7.6
Increase in the scale of operations	21.3	17.0	8.9
Quality improvement	16.8	26.9	20.2
Acquisition of business partners	7.8	14.0	13.9
Introduction of new management methods	4.3	10.4	10.9
Change of business profile	1.3	1.4	2.3
Market opportunities identification	9.0	9.6	16.8
Cost reduction	9.0	9.6	19.4

Data for 400 enterprises

Source: The author’s own compilation

^aRespondents indicated three responses according to their importance as their first, second, and third choice, which meant the most important, very important, and important manifestation of development

The aim of the research was also the assessment of the impact of innovative behaviour of small enterprises on their development. In order to achieve this goal, the following dependence was examined: whether the strength of orientation towards innovative behaviour affects enterprise development. To check the strength of this relationship, Spearman’s rank correlation coefficient (0.342) was calculated which indicated the existence of a moderate relationship between the analysed variables; i.e. there is a positive impact of the company’s strong orientation towards innovative behaviour on its development.

5 Conclusions

The management of a modern enterprise, especially a small one, is strongly related to changes taking place in its environment. The phenomena occurring in the environment of enterprises create for them, on the one hand, certain development opportunities, and on the other hand, barriers. Strong environmental pressure forces enterprises to introduce new solutions, ideas, business models, and a different approach to resources and processes in the enterprise. It also results in the necessity of constant implementation of innovations, effective management of innovation processes, as well as changes in innovative behaviour. The research results presented in the study allowed for the exploration of issues related to identifying and using innovative behaviours in managing the development of small businesses and allowed us to draw the following final conclusions:

- The surveyed enterprises were characterised by strong orientation towards innovative behaviour.

- The surveyed entities were characterised by very strong and strong development orientation, which may have resulted in the improvement of the performance of these entities in the form of growth mainly in such areas as productivity, sales, employment, and profits.
- As the main manifestations of development, the surveyed enterprises indicated primarily production modernisation, increase in the scale of operations, and quality improvement, which was to a large extent related to the innovative activity conducted by these entities.
- The research hypothesis on the existence of the impact of the strength of orientation towards innovative behaviour on enterprise development has been positively verified.

The study presented in the chapter has limitations, i.e. the fact that it discusses Polish conditions that are characterised by a lower level of experience in the analysis of innovative behaviour of small businesses in comparison with other world economies as well as the fact that the research is static, as it concerns only one period. Therefore, future research should be directed towards a more in-depth exploration of innovative behaviour of small enterprises operating in countries with a different degree of development of these entities. The identification and classification of determinants of innovative behaviour of small enterprises in the context of its effects on the development of these entities also requires separate studies. It would be interesting to conduct research relating to different periods, allowing for the comparison of changes in the innovative behaviour of small businesses. Empirical verification of these issues can provide a source of new knowledge for entrepreneurs, which will increase the efficiency of managing small businesses.

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How Polish Enterprises Cooperate with Business Environment Institutions and Absorb the Support Provided Under the EU Funds: Analysis of Survey Results



Monika Fabińska

Abstract The aim of this chapter is to answer the question whether enterprises use the support of business environment institutions and how they assess the level of services provided by these entities. The objective will be verified on the basis of surveys conducted as part of the research project entitled “Determinants of Entrepreneurship and Innovation in Small Businesses,” implemented by employees of the Department of Entrepreneurship and Industrial Policy of the Faculty of Management at the University of Lodz in the fourth quarter of 2017. The analysis of questionnaire surveys allowed us to formulate preliminary proposals of how diagnosed relationships of enterprises with business environment institutions can be strengthened. The most significant are (a) increasing knowledge about improving formal procedures in the area of establishing and continuing the cooperation of companies with business environment institutions; (b) disseminating good practices in the field of business environment institutions’ cooperation with businesses through networking activities, as well as the organization of meetings and online campaigns; and (c) enabling wide access to information on the benefits and effects of cooperation between companies and business environment institutions through various instruments, including Internet portals, consultation points, articles, and broadcasts.

Keywords Business environment institutions · Financial support · Innovative socioeconomic development · 2014–2020 perspective

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1 Introduction

Business environment institutions are one of the pillars of the innovative socioeconomic development of the Member States of the European Union. Therefore, under the current financial perspective—for the years 2014–2020—they belong to the group of entities covered by significant support, including financial support from the European Commission. This support is implemented on three levels: macro (member countries, mainly under the Horizon 2020), meso (national), and micro (regional), for which separate project financing programs whose beneficiaries are business environment institutions have been developed.

The analysis of the EU and national documents indicates that the support under the current programming period is more targeted at advanced activities undertaken by business environment institutions (mainly aimed at the development of pro-innovation support oriented toward pro-developmental needs of companies), including improving the management of these entities, encompassing, among others, interdisciplinary projects and internationalization activities. To a lesser extent, this support concerns elementary activities carried out by both existing and emerging business environment institutions, including investments in infrastructure or the implementation of basic services addressed to companies.

Therefore, the question arises whether thus implemented support programs have an impact on the development of companies. The aim of the chapter is to answer the question whether companies use the support of business environment institutions and how they assess the level of services provided by these entities. The set objective will be verified on the basis of surveys carried out as part of the research project “Determinants of Entrepreneurship and Innovation in Small Business,” implemented by employees of the Department of Entrepreneurship and Industrial Policy of the Faculty of Management at the University of Lodz in the fourth quarter of 2017. The analysis of questionnaire surveys allowed us to formulate initial proposals for improving relations between business environment institutions and enterprises. The most significant are (a) increasing knowledge about improving formal procedures in the area of establishing and continuing the cooperation of companies with business environment institutions; (b) disseminating good practices in the field of business environment institutions’ cooperation with businesses through networking activities, as well as the organization of meetings and online campaigns; and (c) enabling wide access to information on the benefits and effects of cooperation between companies and business environment institutions through various instruments, including Internet portals, consultation points, articles, and broadcasts.

The article was divided into two chapters: the theoretical and empirical part and the conclusion.

2 The Quality of Support Provided by Business Environment Institutions Operating in the Domestic Market

Business environment institutions are one of the pillars of the innovative socio-economic development of the Member States of the European Union (Mażewska 2015). However, despite significant progress in the organizational development of business environment institutions, there are still disproportions in the accessibility of their services, particularly specialized services that provide support for companies in the implementation of innovative projects, including interdisciplinary and international projects (Duliniec 2011). In most cases, large enterprises are characterized by better absorption of innovation. Small and medium-sized enterprises have problems with identifying their own potential and are not capable of using external sources of assistance. Therefore, the creation of appropriate support infrastructure for innovative companies should be a priority. The transfer of knowledge is important in this case. The proper distribution of knowledge depends on the proactive approach of business environment institutions (Hunt and Kiefer 2017).

It is therefore necessary to disseminate knowledge through various communication channels. Nevertheless, knowledge distribution instruments alone are not enough, and this process should be supplemented with the generation of knowledge based on cooperation. The increased willingness of companies to use external sources of assistance and their propensity for cooperation may help to overcome numerous barriers that they face, especially in the initial phase of innovative activities (Bąkowski 2015). Thus, support programs for enterprises were designed with preference given to projects implemented in partnerships, in partnerships between the company and its environment—business environment institutions. This condition applies to the competition under Measure II.3: Increasing the competitiveness of SMEs, Sub-measure II.3.1: Innovations in SMEs, where companies can obtain funding for the implementation or purchase and implementation of R&D results and the implementation of innovative products, manufacturing processes, or provision of services, including eco-innovations.

The activity of small businesses is largely focused on the local market (Czajkowska 2014). Therefore, their relations with the local community may be stronger. Their sense of “local” social responsibility in relation to human resources, customers, and the environment is relatively greater. That is why their role as leaders in cooperation with business environment institutions is crucial. In the light of regional research, the level of cooperation between companies and business environment institutions is still unsatisfactory (Sosińska-Wit 2014). Moreover, the main area of absorption of support is related to financial services assistance in obtaining funds, including the EU funds. The conducted analysis of the surveyed enterprises’ development plans indicates a positive trend in the form of their interest in cooperation with the environment, including the business environment, in order to implement joint projects in the field of development and implementation of innovations.

Business environment institutions have been improving their activities for several years, as a result of, among others, access to the EU funds, but also due to an increase in the awareness of representatives of these entities of the importance of the support they provide for the economic development (Hunt 2015). The path of positive changes also applies to the offer addressed to enterprises which is being transformed from a general offer to a profiled one (Popczyk 2015). In the case of small businesses—due to their specificity in the area of relations, decision-making, etc.—this is crucial. The only exception in profiling the offer is related to the loan offer and credit guarantees (Stefański 2017). Regarding the provision of financial services, business environment institutions are usually not interested in profiling their offer to the needs of small businesses (O'Brien et al. 2018).

Companies that initiate and then continue their cooperation with business environment institutions have increased access to knowledge and contacts (Czernecka and Zywert 2017). Thus, they gain a significant advantage, which may translate into the more effective implementation of innovative projects. Therefore, actions taken by business environment institutions and companies themselves will enable them to optimize the offer of support by adjusting it to market demand (profiled support services) and will result in the intensification of innovative ventures based on cooperation (Cravo and Piza 2019).

3 Cooperation of Companies with Business Environment Institutions: Results of the Research Project

The identification of activities undertaken by companies in the field of cooperation with business environment institutions was carried out based on the results of the research project “Determinants of Entrepreneurship and Innovation in Small Businesses,” implemented by employees of the Department of Entrepreneurship and Industrial Policy of the Faculty of Management at the University of Lodz in the fourth quarter of 2017. The study was conducted using the computer-assisted telephone interviewing (CATI) method on a group of 400 respondents. It was directed to owners/co-owners of Polish small innovative companies, i.e., those that in 2014–2017 introduced at least one change referring to the implementation of new or modernization of existing products/services, or the implementation of new or modernization of the existing technical method of production/provision of services.

A total of 400 representatives of companies employing more than 9 employees to a maximum of 50 employees participated in the survey. Thus, the study covered small and medium-sized enterprises. As for the size and scale of operations, those were small and medium-sized companies representing the manufacturing, service, and commercial sectors. The number of enterprises that benefited from public support offered by business environment institutions amounted to 38.75% (155 entities benefited from the support offered by business environment institutions). Thus,

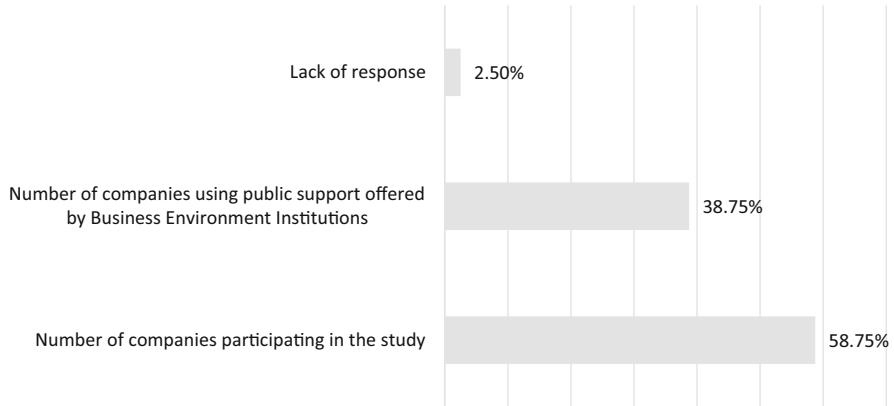


Fig. 1 The use of public support offered by Business Environment Institutions. (Source: Author’s calculation)

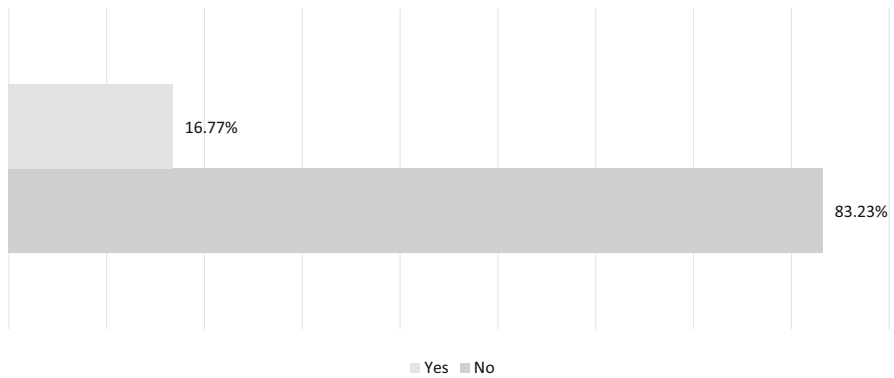


Fig. 2 Problems/difficulty in the cooperation of the surveyed enterprises with business environment institutions. (Source: Author’s calculation)

the research shows that there are still few companies that use the support of business environment institutions (Fig. 1).

The surveyed enterprises were also asked about barriers to their cooperation with business environment institutions. The companies did not encounter significant barriers to their cooperation with business environment institutions, as a lack of problems/difficulty in their cooperation with business environment institutions was indicated by 83.23% of companies. Only 16.77% of companies had difficulty in relations with business environment institutions (Fig. 2).

As regards the factors hindering their cooperation with business environment institutions, the surveyed enterprises indicated the following factors ranging from the most important to irrelevant:

1. Nontransparent, complicated procedures (procedures for establishing cooperation between the company and the business environment institution).
2. Extensive documentation to fill in.
3. Long waiting time for the consideration of the case (the case regarding establishing cooperation between the company and the business environment institution).
4. Provision of services of unsatisfactory substantive quality, unmatched to the needs of local enterprises (the insufficient involvement of employees of these institutions in establishing cooperation with companies, e.g., by organizing meetings, telephone conversations, or direct contacts with company representatives.).
5. Inadequate substantive preparation of employees of these institutions (extensive documentation to be completed regarding cooperation between the company and the business environment institution. Bureaucracy).
6. Insufficient availability of information about the offer addressed to entrepreneurs (no website or its low readability), no organization of meetings with entrepreneurs, little or no commitment to reach companies with the information about the offer).
7. Insufficient involvement of employees of these institutions.

Therefore, it can be seen that bureaucracy is an element blocking the cooperation of enterprises with business environment institutions, especially the lack of transparent procedures and the use of complicated documentation. These are the main factors that inhibit the development of cooperation between companies and business environment institutions. It is worth noting that there is practically no problem regarding the substantive preparation of employees of business environment institutions and the availability of the information about the offer of these institutions addressed to entrepreneurs. Thus, business environment institutions are organizationally prepared for cooperation with companies. They do not have a say in the procedures and documentation which they are obliged by regional or national guidelines to adhere to based on the provisions of laws and implemented regional operational programs.

Respondents were also asked about factors that could improve the quality of cooperation between companies and business environment institutions. The surveyed respondents indicated the following factors (starting from the key ones) according to the hierarchy of influence of a given factor on the quality of cooperation:

1. Simplification of procedures (cooperation procedures between the company and the business environment institution).
2. Mobile advisors (a mobile advisor—an advisor who goes to the company and performs an advisory service on-site).
3. Shortening the waiting time for the consideration of the case (shortening the time for the consideration of the case regarding establishing cooperation between the company and the business environment institution, e.g., a maximum of 1 to 2 days).

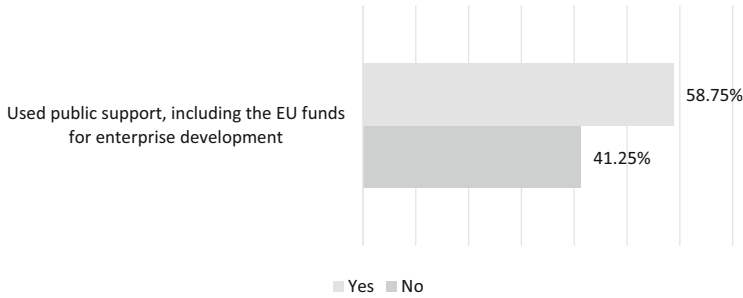


Fig. 3 The use of public support, including the EU funds for enterprise development. (Source: Author’s calculation)

4. Professionalization of websites of these institutions.
5. Sending bulletins/newsletters to employers about the forms of support provided.
6. Rewarding employees of these institutions with a bonus for work efficiency (measured, for example, by the number of projects implemented with entrepreneurs or the number of organized meetings).
7. Monitoring the quality of work (evaluation, mystery customer). Monitoring the quality of work of employees of business environment institutions.
8. A website with the offer of all business environment institutions operating in a given voivodship in which the company is located.
9. Increasing the activity of these institutions on social networking sites.

Considering that the element inhibiting the cooperation of companies with business environment institutions is bureaucracy, and particularly the lack of transparent procedures and the use of complicated documentation, it is the simplification of procedures that could significantly increase this cooperation. The surveyed respondents also expressed interest in accessing mobile advisors and improving the websites of these institutions. An important element improving the effectiveness of cooperation would also be shortening the waiting time for the consideration of the case (shortening the time for the consideration of the case regarding establishing the cooperation between the company and the business environment institution, e.g., a maximum of 1 to 2 days).

Therefore, it can be seen that time is of crucial importance for companies, including time related to the procedures required to establish and maintain their cooperation with business environment institutions.

Analyzing the issues concerning the cooperation of enterprises with business environment institutions and their readiness to implement joint projects, one should also assess their level of involvement in the use of external public support, including the EU funds. 165 companies benefited from external support, including support from the EU funds for enterprise development (Fig. 3).

The conducted analysis of the type of external support, including support from the EU funds for enterprise development (the respondents were able to choose more than one option), shows that the largest number of enterprises benefited from

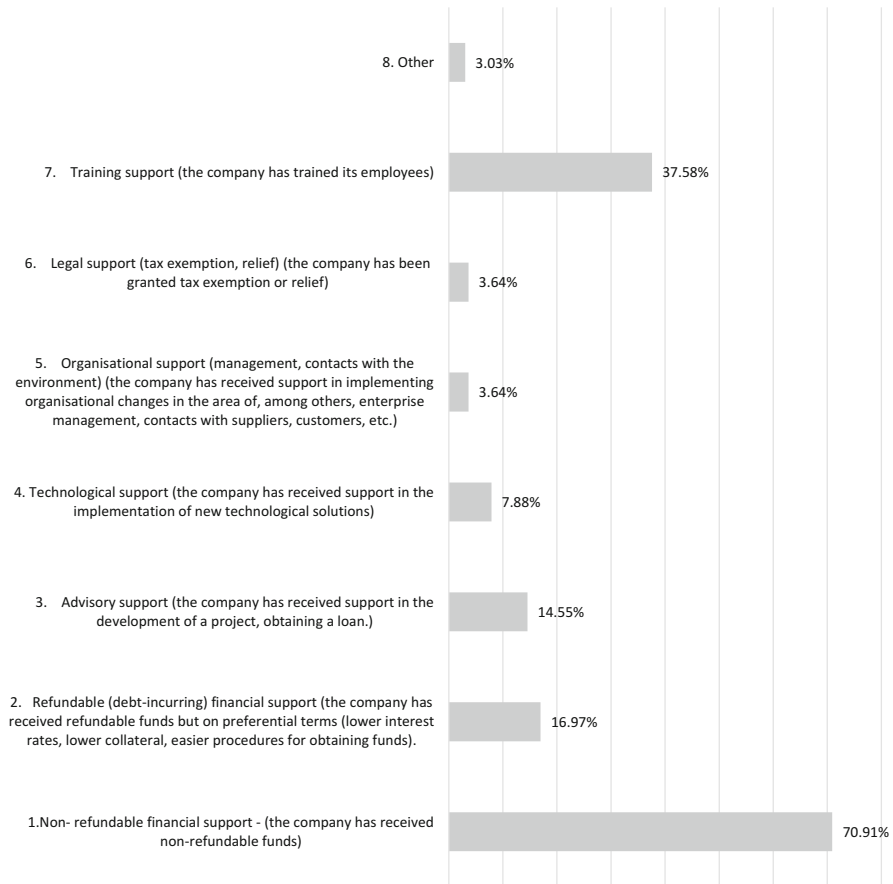


Fig. 4 Type of external support received, including the EU funds for enterprise development. (Source: Author's calculation)

nonrefundable financial support. This type of support was indicated by 70.91% of respondents followed by (a) training support—37.58% of responses, (b) refundable financial support—16.97% of responses, and (c) advisory support—14.55% of responses (Fig. 4). Therefore, it can be seen that companies are still looking for possibilities of recapitalization of planned investments, including seeking nonrefundable forms of financing. To a lesser extent, they use technological or advisory support.

4 Conclusions

Poland is in the phase of developing and improving the offer of business environment institutions. The dominance of support related to obtaining funding is still visible. Nevertheless, profiled offers are beginning to appear, including offers addressed to enterprises. However, both strong and weaker entities representing business environment institutions are struggling with the basic problem related to bureaucracy, which significantly limits the possibilities of cooperation with companies. However, it should be noted that there have been significant changes in the management of business environment institutions that now not only have at their disposal the appropriate infrastructure but also cooperate with experts who provide services to their target groups.

Due to the fact that changes, including changes in the field of regulations and procedures, are a long-term process, continuous work in this area is required, focusing on the following aspects: (a) increasing knowledge about improving formal procedures in the area of establishing and continuing the cooperation of companies with business environment institutions; (b) increasing the knowledge of enterprises and business environment institutions regarding the benefits of cooperating and using the joint achievements and experience for the implementation of innovative projects; (c) disseminating good practices in the field of business environment institutions' cooperation with businesses through networking activities, as well as the organization of meetings and online campaigns; (d) further strengthening of the organizational potential of business environment institutions, including further professionalization of personnel; and (e) enabling wide access to information on the benefits and effects of cooperation between companies and business environment institutions through various instruments, including Internet portals, consultation points, articles, and broadcasts.

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Energy Efficiency Clusters and Platforms as a Potential for SMEs Development: Poland Case Study



Anna Pamula

Abstract Looking for new ways to access new technologies, trying to reduce energy consumption and CO₂ emission, or simply searching a new place on the changing market, SMEs access energy efficiency clusters to be more environmentally friendly and to find new business opportunities. The main aim of this chapter is to identify the existing SMEs ability toward cooperation and relation with networks/clusters/associations. The chapter presents main motivators perceived on energy efficiency initiatives and joining energy clusters by Polish SMEs based on the results of the survey conducted in Poland in December 2017 and January 2018. The result of investigating 246 SMEs (micro, small, and medium) located in Poland is presented in the chapter. The study shows that the awareness of Polish SMEs according to collaboration and creating new business models is quite good, while the perception of platforms as a facilitator is still rather weak. The importance of energy efficiency platforms as a source of knowledge was highlighted by surveyed entities.

Keywords SME · Clusters · Platforms · Networks · Energy efficiency · Poland

1 Introduction

Sustainability is described in the literature as a complex phenomenon considering a series of issues related to the rational use of resources including energy efficiency. The energy production and consumption rises in Poland, although 2017 was the first time since more than 10 years when energy generated from renewable energy sources (RES) was decreased. The costs of energy consumption in manufacturing enterprises and in the services sector differ, but an increasing tendency in recent years can be observed in Poland. Energy consumption in services is about 13%

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(GUS 2017) of national energy consumption, but it should be remembered that this is a sector that has experienced the strongest growth in recent years linked to employment growth. Energy consumption remains strong in relation to two parameters mentioned above. Rising energy prices mean that the costs associated with its use are becoming more and more important in the structure of operating costs of Polish manufacturing and retail enterprises (including accommodation, restaurants, and offices). The Polish Energy Efficiency Act imposes obligations to improve efficiency primarily on large enterprises, leaving small and medium enterprises (SMEs) outside direct legislation. However, the attitude for SME energy efficiency measures is recognized as very important by many researchers.

A cluster concept, as a solution for generating value for small specific groups of stakeholders like SMEs, was widely described in the literature. Looking for new ways to reduce energy consumption and CO₂ emission and trying to find a place on the changing energy market, efficiency clusters are established to produce new equipment and to create a new infrastructure for energy and services supply to neighboring companies and residential areas. Besides the environmental protection aspects, business effect of cluster activities is expected. Importantly, for less developed areas, energy efficiency clusters may create a chance to improve the competitiveness of the local economy and allow stakeholders to contribute to the restructuring of rural areas.

The Polish Ministry of Energy made the decision to start a venture that will stimulate local communities to cooperate and generate energy from renewable sources for their own needs under the concept of energy clusters understood as an agreement of several stakeholders within the municipality that will collectively produce and manage energy and pay a subscription fee for energy distribution. The implementation of the energy efficiency network programs under smart power grid solutions is a chance for smaller stakeholders who would like to benefit from new power network paradigm.

The concept of energy clusters given by the Polish government places strong emphasis on a business model that will enable energy clusters to function effectively on the market after the financial support is finished. According to the initial assumptions, the cluster is going to gather several stakeholders in a given area (in the limits of one county), which will together produce and manage the electricity. The stakeholders group may include residents, entrepreneurs, local government, scientific units, or non-governmental organizations. Each of the clusters would be represented by the coordinator. This function can be performed by a foundation, a cooperative, or a cluster member. The important part is to develop rules for cooperation between all stakeholders and assessing the awareness of the potential stakeholders. Developing this integration should be stimulated by legal regulations, or sharing of good practices requires strong support for pilot projects. It must be noticed that the goals assigned to energy clusters by the Polish Ministry of Energy reflect the global goals set for electricity distribution companies. The concept offers a possibility of cooperation between bodies that have their own distribution networks in the local area, as well as those that use networks belonging to state-owned distribution companies. The main goals of such cooperation are to offer benefits to customers,

increase energy efficiency, minimize total energy consumption, reduce negative impact on the environment, improve the reliability of deliveries, and enable operational benefits such as loss reduction, voltage control, or power safety and reconstruction of power infrastructure by stimulating energy prosumption (Ministry of Energy, Poland 2017). The main assumptions for energy clusters are as follows:

- Enabling local initiatives to manage low voltage (15 and 0.4 kV) networks either in the ownership formula or by agreements of cooperation with local distribution utilities
- Enabling participation in the energy market for existing local bodies (e.g., operating on the thermal energy market) through the cogeneration (heat/electricity) or new company aggregators
- Guaranteeing transparent cost/tariffs procedures including dynamic tariffs and possibly negative prices
- Providing voluntary system of participation and giving up an energy cluster with access to energy consumption profiles
- Supporting smart grid initiatives like micro-grids, through change regulations and regulations
- Designing a possible range of pilot programs and possible financial incentives to encourage adoption of new technologies in energy storage including heat and management systems
- Defining the role of local authorities through effective application of energy planning rules about the energy supply conditions for the area including energy market

Several studies have investigated and presented the drivers and barriers to energy efficiency (Assenza and Reddy 2007; Johnson and Andersson 2016; Meath et al. 2016; Rohdin et al. 2006; Solnørdal and Thyholdt 2017; Sorell et al. 2011; Thollander and Ottosson 2008; Trianni and Cagno 2012; Trianni and Cagno 2013). Examples and case studies show that SMEs experience many different types of barriers and motivators adopting energy efficiency measures. Participating in governmental, mostly voluntary, programs creates new barriers and chances unique to particular SMEs that must be investigated before implementing the program (Meath et al. 2016) to better tailor the schemes and projects. In Poland, the first pilot energy clusters are already established carrying out activities to use local energy resources, but there is no research evaluating the barriers and motivators yet. The main aim of this chapter is to fill this gap and identify the existing Polish SMEs ability toward cooperation and relation with networks/clusters/associations at this early stage of energy cluster development. The next section of the chapter considers drivers and barriers for energy efficiency as well as SMEs attitudes toward networking initiatives. Section 3 describes the methodology applied for data collection, and Sect. 4 presents the Polish SME attitudes toward the idea of energy efficiency clusters and perception of collaborative platforms as the facilitator leading to faster growth based on the collected data.

2 SMEs Networking toward Energy Efficiency

Nearly 40 years of studies on the business proliferation of energy efficiency initiatives have led to the development of taxonomy of economic, organizational, and psychological barriers that determine gaps through the use of a variety of research frameworks (Johnson and Andersson 2016; Meath et al. 2016). Drivers and barriers for energy efficiency were examined by different disciplines from a number of points of view including engineering, economics, and behavioral studies creating a big source of knowledge and showing some evidence for industrial and retail business.

Like in all Europe, SMEs are the dominant part of the Polish business scene representing 99% of all enterprises and constitute approximately 70% of the total number of employees in Poland (PARP 2018). Annually, over 1/3 million (PARP 2018) of new enterprises are created and more importantly the openness of entrepreneurs grows as well as their awareness of energy efficiency. However, they seldom have the capacity (human or infrastructure) to systematically exploit energy savings or manage the energy usage due to information deficit and other barriers. SME are active in almost all sectors and although some of them consume little energy that does not mean that they can be considered outside the scope of existing carbon policies (Rawlings et al. 2014). Furthermore, SMEs show interest in smart grid solutions, joining energy efficiency clusters or cooperatives. Some observations show that the employees in the sector of SME are trying to reduce energy consumption by transferring household habits to the company's premises regarding electricity (e.g., switching off unnecessary lighting, computers, monitors, and other equipment), but more advanced activities requiring bigger investment are rarely seen.

The barriers for energy-intensive SMEs were defined by several studies and grouped into general categories: technology-related, information-related, economic-related (cost, access to capital, split incentives), behavioral, organizational, related to the people competencies, and awareness (bounded rationality) (Rohdin et al. 2006; Sorell et al. 2011). The cost/risk of production disruption, lack of time, and other investment priorities as well as the time and cost of obtaining the knowledge are recognized as the main barriers (Trianni and Cagno 2013). A study of Italian SME identified internal and external factors such as firm size, sector supply chain complexity, and innovation attitude of the organization as the drivers that influence the adoption of energy efficiency technologies (Trianni and Cagno 2013).

The drivers of energy efficiency are understood as the factors that promote private investment in the area (Assenza and Reddy 2007), the opposite of the barriers (Thollander and Ottosson 2008), facilitating the adoption of energy efficiency technologies and practices beyond the investments affecting the culture and awareness (Trianni and Cagno 2012, 2013). Additional factors were investigated by other authors, e.g., the importance of the energy audit quality as well as templates for audit reports was stressed by Fleiter et al. (2012). The earlier studies showed that company size is an important factor influencing energy efficiency practices adoption and big companies were the main area of their first research interest, although some

researches recognized SMEs as a significant group with big potential for energy efficiency improvement and requiring more detailed studies.

The overview of empirical studies addressing the barriers of energy efficiency described by different sectors/markets based on the data published by different researches can be found in Fleiter et al. (2012). Most of them show the lack of the capital and not enough information as the main barriers. The idea of cluster/cooperatives/networks seems to be a solution for wider adoption, as collaborative activities across companies can help SME to find answers for problems and implement energy efficiency ideas (Paramonova and Thollander 2016).

Business units and all stakeholders operating in the modern world are mutually dependent, and the scope and complexity of these relationships is constantly growing, creating a vast, extensive, and dynamically changing structure of the network of contacts, companies forming alliances and partnerships. The structure and the advantages of network organizations were examined by many authors defining following drivers: mutual coordination of activities, common approval of goals, the voluntary nature and privacy of partners, mutual access to information about partners, and the effect of synergy as the crucial ones.

The organizational networking behaviors of UK SME in the manufacturing sector based on an interaction approach related to the Industrial Network Approach were investigated by (Thornton et al. 2013) defining four types of networking behaviors that can provide practitioners operating in business markets with a guideline for utilizing different types of relationships to achieve different outcomes. According to their findings, the effectiveness of the networking behaviors is conditioned by the company organizational characteristics, self-perceived network identity, or the dynamics of networks they participate (Thornton et al. 2013). They also emphasized that firms need to consider how likely their anticipated networking outcomes can be realized in a given time frame, especially for longer-term investments for some outcomes, and they suggest using a portfolio approach to maximize the utility of their network approach.

Collaboration networks allow affiliated organizations to cooperate and share the resources in various directions to achieve a common goal, but the degree of involvement of individual participants in specific activities can be different and uneven in time. The way and context of collaboration are not the same as for agencies or associations (Paramonova and Thollander 2016). The important added value of such cooperation is the reduction of cost, reduction of business risk, and access to knowledge which in general offers a fast adoption of solutions and ideas for improvement. Four basic types of networks are described in the literature (Paramonova and Thollander 2016): clusters, industrial districts, strategic networks, and regional strategic networks.

A cluster concept as a solution for generating value for small specific groups of stakeholders like SMEs, universities, funding bodies, and local inhabitants was widely described in the literature (Jaegersberg and Ure 2011). The implementation and development of clusters with local sociotechnical and sociopolitical factors can help sharing expertise and creating a value in inter-organizational supply chain networks and generating wealth for the whole region (Jaegersberg and Ure 2011).

Different points of views on the cluster idea are considered by various disciplines. The economists place strong emphasis on competitive business models seeing nature of competition, speed of innovation, and knowledge management strategies as potential benefits. However, some barriers mainly related to communication and collaboration as well as lack of SMEs support were identified by some scholars (Jaegersberg and Ure 2011). The community-based cluster requires a strong interactive collaboration.

Business clusters are defined as the combination of interconnected organizations of different types and profiles (supplier, service providers, universities, or research bodies) that lead to shared advantages due to aggregation of certain resources (Porter 1998). The companies are the competitors, who are willing to work together. The firms affiliated in the cluster have more chances for performing advantages, due to the scale of economic, and access to the local information and networks (OECD 1999). The other benefits are the culture of innovation and new venture development based on mobility of resources. Industrial district concept of companies working together and willing to cooperate is limited to the geographical and cultural work and living areas of their employees.

Strategic networks have a long-term horizon focused on competitive advantage over companies outside the network. Regional strategic networks are supported by external actors and usually are limited to the geographical area. Paramonova and Thollander (2016) emphasize that clusters and industrial districts gather the companies which are competitors willing to cooperate, but the members of Strategic and Regional Strategic Networks are also willing to exchange knowledge. They confirm that SMEs can supplement their efforts to improve energy efficiency by participating in industrial energy efficiency networks. According to Amoroso et al. (2018), while traditional sources of knowledge are essential for entrepreneurs, new sources such as suppliers, competitors, and trade fairs are beginning to play an important role in obtaining information. Energy efficiency digital platforms are becoming one of such new resources.

In energy efficiency networks, members are exchanging knowledge and sharing their experience in order to achieve energy efficiency goals. The coordinator is responsible for administrative work and acquiring external expert support. Learning energy networks are examined and results show their practices, methods, and standards (Paramonova and Thollander 2016; Meath et al. 2016). Solnørðal and Thyholdt's (2017) research investigating the role of motivational factors and firm characteristics (education, R&D, and cooperation strategies) as drivers for energy efficiency investments showed the positive effect of education level, cooperation with competitors, and universities or research institutions. The same research pointed out that the size of the company is also positively related but did not confirm that R&D is positively related.

New forms of interdependencies drive changes into business, as the network forces the participants to define their business values and goals, which was proved by Rossignoli and Lionzo (2018) as an important impact on business models for sustainability in energy sector.

Since their appearance, platforms influence and change the ways the business is done and their digital nature allows us to include entities outside the local geographic area of network or cluster. When appeared, platforms supported and connected a limited number of stakeholders (employees, buyers or sellers), new digital platforms transformed into multi-sided ecosystems that gain more shareholders and enable interaction between them. Several types of platforms regarding energy efficiency, smart energy communities, and other energy-related issues are provided by many organizations, most of them combining basic areas of the smart grid with other smart city areas such as smart transport, smart buildings, smart jobs, and consumers. Portals and platforms concerning ecological issues have become a source of knowledge and a place to start business contacts in the area of SG (Paredes-Frigolett 2015). In the case of the multi-commodity energy systems, the complexity of such a platform is more complex, as it comes from competing interests of different stakeholders, multiple markets, diverse infrastructure, a well as proliferated regulatory regimes and policies (D'Souza et al. 2018). In order to realize the new activities toward energy efficiency, stakeholders need a shared space focused on knowledge, know-how, and models of energy management. These platforms will play a crucial role by integrating energy consumers, providers, and other stakeholders.

3 Data and Methodology

The main aim of this study is to identify the existing SMEs ability toward cooperation and relation with networks/clusters/associations and recognizing the motivators of accessing the energy efficiency clusters by Polish SMEs as well as to recognize how they perceive the platforms as a possibility of cooperating and creating new solution.

The following research questions were considered:

- Q1. What is SMEs perception about energy and energy efficiency networks/clusters?
- Q2. Has participation in a network or association an impact on access to energy clusters?
- Q3. Do SMEs recognize the digital platforms dedicated to energy efficiency and energy management as new business development possibilities?

For the purpose of the study, the questionnaire was developed. In order to ensure the quality of the data, the research was conducted in Poland using CATI method by professional agency. The chapter presents the result of the study based on the data obtained in December 2017 and January 2018. The result of investigating 246 SMEs (micro, small, and medium) located in Poland is presented in the paper. The random sample method was applied to choose respondents. The managers in charge of energy issues (or owners in the case of small firms) were interviewed by telephone. The results were gathered into database and divided into groups of data collecting company information, activities toward energy efficiency, and awareness of participating in energy efficiency networks (clusters/associations).

Table 1 SMEs collaboration in networks/associations

Collaboration type:	
The company is a member of an industrial cluster and at least one industry association	5.28%
The company is an active member of the industry cluster and more than one industry association	3.25%
Participation is limited to some in events selected conducted by the industry association	5.69%
The company is the coordinator of the industry cluster	0%

Data for 246 SMEs

Source: Own compilation based on collected data

From the research point of view, it was important to prepare a study which would allow the identification of the key factors for accepting energy efficiency and energy clusters as an idea of smart grid solutions and sustainable development in Poland. The characteristic of the investigated companies covered

- Retail companies: 14.63%
- Manufacturing companies: 52.85%
- Services companies (including education): 32.52%

The companies represented a variety of sectors including transport, accommodation, textile, manufacturing of finished products and parts, energy services, and retail business. The SMEs were located across Poland, 14.23% of them associated with any type of networks (the results are presented in Table 1).

4 Findings

The attitude toward accessing energy clusters was examined based on checking the attitude toward several motivators. The list of drivers leading SMEs to join energy efficiency and energy clusters/cooperative ideas was created based on literature review covering different business perspectives: technological, financial, collaboration, and knowledge. Following motivators were evaluated:

- M1. Support in the form of ESCO financing infrastructure
- M2. The ability to access funds and better credit line conditions
- M3. Outsourcing infrastructure maintenance to ESCO (as a service model)
- M4. Access to cheaper or free expert opinion or audit
- M5. Access to documentation templates
- M6. Possibility to gather new partners and create new business opportunities
- M7. Getting knowledge and information by participation in seminars, workshops, and certifications
- M8. Understanding the energy market (possibilities, tariffs, responsibilities)
- M9. Common marketing and promotion system for energy efficiency measures
- M10. Better access for information about plans and projects on energy efficiency

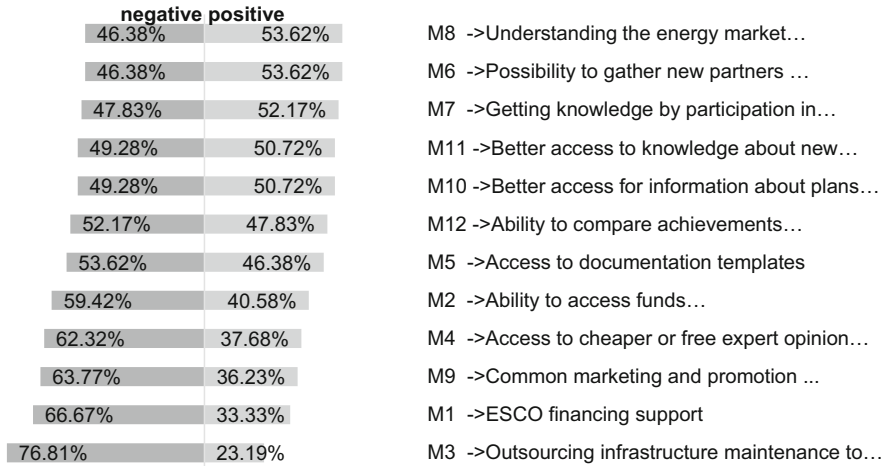


Fig. 1 The assessment of the motivators of joining energy efficiency clusters (all SMEs). (Source: Own compilation based on collected data)

M11. Better access to information and knowledge about new technologies

M12. Ability to compare achievements with other cluster partners

The even-point Likert scale (from 0 - not at all important; to 5 -very important) was applied to examine the level of respondents agreement with the list of presented motivators. Fig. 1 presents the assessment of motivators based on all investigated SMEs with aggregated negative (rates: 0,1,2) and positive assessment (rates: 3,4,5). Understanding the energy market (M8) and the possibility to gather new partners and create new business opportunities (M6) were pointed out by the respondents as the most important motivators; at various levels of importance, it was determined by more than 53% of respondents. That means the investigated SMEs perceive collaboration in network membership as an important factor stimulating company growth as well as show willingness to start energy market collaboration. The knowledge that can be obtained due to clustered collaboration was important for investigated SMEs. That was confirmed by the high rank of motivators: M7, M10, and M11. Getting knowledge and information by participation in seminars, workshops, and certifications (M7) was ranked third, both motivators related to accessing the information (better access for information about plans and projects on energy efficiency (M10) and better access to information and knowledge about new technologies (M11)) were ranked above 50%.

The second research question was aimed at investigating if participation in a network or association has an impact on access to energy clusters. As the first step of the analysis conducted, it was examined whether there existed a statistically significant relationship between the attitude toward accessing energy clusters and the SMEs involvement in other cluster/associations. For this purpose, the Mann–Whitney U test was applied which allowed to test the hypothesis:

H_0 : *the analyzed variables are independent.*

against the alternative hypothesis.

H_1 : *the variables are not independent.*

Calculations carried out indicated that only in the case of 3 analyzed motivators: M8—understanding the energy market, M10—better access for information about plans and projects on energy efficiency, and M11—better access to information and knowledge about new technologies, H_0 should be rejected in favor of H_1 , as the probability in the test was smaller than the assumed level of significance $p = 0.05$; thus, the relationships were statistically significant. In the case of other motivators, the probability in the test was greater than the assumed level of significance $p = 0.05$; thus, H_0 should be assumed. The results were confirmed by Spearman's rho. Based on the results, it can be seen that the SMEs already involved in clusters collaboration ranked motivators M8, M10, and M11 statistically higher grade.

Table 2 presents the results of only SMEs that already claimed being the members of network or association, placing the same 5 motivators at the top (although with not the same ranking order) presenting much higher results compared to the results for all investigated SMEs presented in Fig. 1. In the case of the first position M8—understanding the energy market, the difference is more than 20%. The possibility to gather new partners and create new business opportunities (M6) was placed lower, still scoring about 10% more than in the case of the results calculated for all respondents.

Table 3 presents the detailed results of negative assessments (0,1,2), while Table 4 shows positive (3,4,5) for each rate. The comparison of assessment for all investigated SMEs, already involved in collaboration with other clusters and not involved SMEs, is presented. What is worth considering is that detailed results vary depending on motivators. The negative assessments by SMEs involved in other clusters were mostly lower for almost each rate (assigned with bold fonts in Table 3) except motivators M1, M2, M3, M5, and M6 for rate 0, M3 for rate 1, and M9 for rate 2.

The positive assessments by SMEs involved in other clusters were higher for each motivator for rate 3 (assigned with bold fonts in Table 4) and 5 motivators (M1, M5, M8, M10, M11) for rate 4 and 7 motivators for rate 3 (M4, M5, M6, M7, M9, M11, M12).

To find out the answer for the last research question—if SMEs recognize the business possibilities coming from digital platforms dedicated to energy efficiency and energy management, respondents were asked about financial, collaboration, new business opportunities, and knowledge aspects (Table 5 covers the list of investigated principles). The surveyed respondents could choose more than one answer. Almost 60% of all respondents do not see this type of the digital platform as a way of potential business development (plus another 9.35% with no opinion). The surveyed entities most often indicated the platform as a source of getting knowledge: getting more specific knowledge in the field of energy efficiency (15.04%) and about new technologies (10.57%). The platform as a source of detailed analysis of the costs of

Table 2 The positive assessment of the motivators of joining energy efficiency clusters (already involved SMEs)

The motivator	% of positive attitudes
M1 Understanding the energy market (possibilities, tariffs, responsibilities)	74.29%
M2 Better access to information and knowledge about new technologies	74.29%
M3 Better access for information about plans and projects on energy efficiency	68.57%
M4 Possibility to gather new partners and create new business opportunities	62.86%
M5 Getting knowledge and information by participation in seminars, workshops, and certifications	62.86%
M6 Access to documentation templates	60.00%
M7 Ability to compare achievements with other cluster partners	60.00%
M8 The ability to access funds and better credit line conditions	51.43%
M9 Access to cheaper or free expert opinion or audit	48.57%
M10 Common marketing and promotion system for energy efficiency measures	42.86%
M11 Support in the form of ESCO financing infrastructure	34.29%
M12 Outsourcing infrastructure maintenance to ESCO (as a service model)	22.86%

Data for 35 SMEs

Source: Own compilation based on collected data

using energy and introducing savings was ranked second (13.41%). In the case of SMEs already participating in other networks, the percentage was lower—31.43% (plus 5.71% with no opinion).

At the next stage, an assessment was made as to whether there was a statistically significant relationship between participation in a network or association and the assessment of possibilities coming from digital platforms. For this purpose, the chi-square test was supposed to be used which could allow us to test the following hypothesis:

H_0 : *the analyzed variables are independent.*
against the alternative hypothesis.

H_1 : *the variables are not independent.*

As a limited number of observations (less than 5) were observed in some of the examined groups, the Monte Carlo method was used as a proven pseudo-random sampling method. Calculations carried out indicated that only in the case of getting more specific knowledge in the field of energy efficiency, H_0 should be rejected in favor of H_1 , as the probability in the chi-square test was smaller than the assumed level of significance $p = 0.05$; thus, the relationships were statistically significant. In the case of the other analyzed perspectives coming from digital platforms dedicated to energy efficiency, H_0 should be assumed, which indicates a lack of dependence

Table 3 SMEs perception of motivators (negative attitudes)

Motivator	0				1				2			
	All SMEs	Involved SMEs ^a	Not involved SMEs	All SMEs	Involved SMEs ^a	Not involved SMEs	All SMEs	Involved SMEs ^a	Not involved SMEs	All SMEs	Involved SMEs ^a	Not involved SMEs
M1	28.99%	40.00%	17.65%	10.14%	5.71%	14.71%	27.54%	20.00%	35.29%	27.54%	20.00%	35.29%
M2	27.54%	31.43%	23.53%	11.59%	5.71%	17.65%	20.29%	11.43%	29.41%	20.29%	11.43%	29.41%
M3	46.38%	54.29%	38.24%	10.14%	11.43%	8.82%	20.29%	11.43%	29.41%	20.29%	11.43%	29.41%
M4	24.64%	20.00%	29.41%	8.70%	5.71%	11.76%	28.99%	25.71%	32.35%	28.99%	25.71%	32.35%
M5	18.84%	20.00%	17.65%	11.59%	5.71%	17.65%	23.19%	14.29%	32.35%	23.19%	14.29%	32.35%
M6	21.74%	25.71%	17.65%	5.80%	2.86%	8.82%	18.84%	8.57%	29.41%	18.84%	8.57%	29.41%
M7	23.19%	20.00%	26.47%	5.80%	2.86%	8.82%	18.84%	14.29%	23.53%	18.84%	14.29%	23.53%
M8	24.64%	14.29%	35.29%	4.35%	0.00%	8.82%	17.39%	11.43%	23.53%	17.39%	11.43%	23.53%
M9	27.54%	20.00%	35.29%	8.70%	8.57%	8.82%	27.54%	28.57%	26.47%	27.54%	28.57%	26.47%
M10	21.74%	17.14%	26.47%	13.04%	8.57%	17.65%	14.49%	5.71%	23.53%	14.49%	5.71%	23.53%
M11	23.19%	14.29%	32.35%	5.80%	5.71%	5.88%	20.29%	5.71%	35.29%	20.29%	5.71%	35.29%
M12	23.19%	14.29%	32.35%	8.70%	8.57%	8.82%	20.29%	17.14%	23.53%	20.29%	17.14%	23.53%

Source: Own compilation based on collected data from 246 SMEs

the bold values represent lower negative assessment by SMEs involved in other clusters comparing to all SMEs and not involved SMEs

^abased on data from 35 SMEs

Table 4 SMEs perception of motivators (positive attitudes)

Motivator	3			4			5		
	All SMEs	Involved SMEs ^a	Not involved SMEs	All SMEs	Involved SMEs ^a	Not involved SMEs	All SMEs	Involved SMEs ^a	Not involved SMEs
M1	14.49%	17.14%	11.76%	13.04%	14.29%	11.76%	5.80%	2.86%	8.82%
M2	18.84%	34.29%	2.94%	15.94%	14.29%	17.65%	5.80%	2.86%	8.82%
M3	15.94%	17.14%	14.71%	7.25%	5.71%	8.82%	0.00%	0.00%	0.00%
M4	15.94%	25.71%	5.88%	10.14%	5.71%	14.71%	11.59%	17.14%	5.88%
M5	15.94%	25.71%	5.88%	20.29%	22.86%	17.65%	10.14%	11.43%	8.82%
M6	23.19%	31.43%	14.71%	18.84%	14.29%	23.53%	11.59%	17.14%	5.88%
M7	21.74%	31.43%	11.76%	20.29%	14.29%	26.47%	10.14%	17.14%	2.94%
M8	30.43%	45.71%	14.71%	15.94%	22.86%	8.82%	7.25%	5.71%	8.82%
M9	11.59%	17.14%	5.88%	15.94%	11.43%	20.59%	8.70%	14.29%	2.94%
M10	27.54%	42.86%	11.76%	17.39%	22.86%	11.76%	5.80%	2.86%	8.82%
M11	17.39%	25.71%	8.82%	23.19%	34.29%	11.76%	10.14%	14.29%	5.88%
M12	24.64%	37.14%	11.76%	15.94%	14.29%	17.65%	7.25%	8.57%	5.88%

Source: Own compilation based on collected data from 246 SMEs

the bold values represent higher positive assessment by SMEs involved in other clusters comparing to all SMEs and not involved SMEs
^abased on data from 35 SMEs

Table 5 The assessment of digital energy efficiency and energy clusters platforms as the business development possibility

Perspective	All investigated SMEs	SMEs involved in clusters or associations ^a	SMEs not involved in clusters or associations ^b
Knowledge (the field of getting more specific knowledge in the field of energy efficiency)	15.04%	28.57%	12.80%
Financial (the scope of a detailed analysis of the costs of using energy and introducing savings)	13.41%	25.71%	11.37%
Knowledge (in the field of getting knowledge about new technologies)	10.57%	20.00%	9.00%
New business opportunities (creating and offering new products and services)	6.50%	11.43%	5.69%
Collaboration (in terms of establishing contacts with new partners)	6.10%	5.71%	6.16%
Digital platform is not a way of potential business development	58.94%	31.43%	63.51%
No opinion	9.35%	5.71%	9.95%

Source: The authors' own compilation

Note: The surveyed respondents could choose more than one answer

^aData for 35 enterprises

^bData for 241 enterprises

between those perspectives and the SMEs involvement in other clusters or association.

Table 5 presents the results for evaluated perspectives. In almost all cases, the SMEs already networking present a higher attitude for each of the explored perspective, but surprisingly the assessment of collaboration (in terms of establishing contacts with new partners) was ranked lower, which is not easily explained as the experience gained from the participation in network was not examined in this study.

The results of the study confirmed that Polish SMEs are open for networking ideas. The highest positive assessment of the motivator "understanding the energy market" coincides with Rossignoli and Lionzo's (2018) study on the significant impact of new forms of interdependence on the development of business models for sustainable development in the energy sector. The experience from already being involved in other networks activity has a positive impact on the perception of new digital platforms' business possibilities that confirms the added value of network cooperation discussed by Paramonova and Thollander (2016). Exploring the driver and barriers for energy efficiency initiatives within SMEs, Trianni and Cagno (2013) emphasized the allowances or public financing for energy efficiency interventions, as well as the importance of external pressures such as increases in energy prices and the introduction or increasing of fees on emissions of pollutants. In this research, the ability to access funds was pointed out as important, but not placed on the top. The

high importance of knowledge aspect pointed out by the examined enterprises confirms Jaegersberg and Ure's (2011) findings of providing knowledge and experience sharing within and between clusters to ensure early identification and joint stakeholder engagement in regional cluster as well as Paramonova and Thollander's (2016) suggestions of applying common implementation of energy efficiency measures and introducing customized energy management practices into SME that could help to overcome the barriers. The study also shows that for the surveyed SMEs, energy efficiency platforms become a source of knowledge, as is the case with environmental platforms, as demonstrated by Paredes-Frigolett (2015). However, unlike the Pareges-Frigolet survey, they are not yet seen as a place to establish business contacts, which may be the result of an early stage of development of energy clusters in Poland.

5 Conclusions

Sustainable development and digital transformation force companies to search for new solutions and ways to collaborate for creating new ideas and business models. Digital platforms will play a crucial role in further business development. The platforms are dedicated to facilitate transactions, support collaboration, stimulate research and innovation, as well as to mobilize network stakeholders to share information and know-how. For investigated SMEs, the knowledge aspect proved to be very important and perceived as a vital motivator for joining an energy efficiency cluster. On the other side, low perception of "as a service" model (in the case of infrastructure outsourcing) may indicate SMEs doubts related to new business models in the case of the presented study.

Although obtained results are valuable, it must be added that this chapter has some limitations. Firstly, it considers only certain areas of energy efficiency issues and examines only general level of SMEs motivators toward energy efficiency clusters and cooperatives. Secondly, the research is based on limited case studies, only 246 SMEs were examined, and the percentage of SMEs involved in clusters or associations was rather small in the respondents group.

The assumptions for the questionnaire study were adopted in the methodology, while examples from the literature show that the survey study with self-assessed positive and negative factors driving or preventing activities is often taken from subjective judgments of respondents. Additionally, small firms can underestimate the cost-efficient potential to improve energy efficiency (Fleiter et al. 2012). Nevertheless, since there are a limited number of studies on barriers and motivators of joining energy efficiency clusters, the survey results are useful for further research. Small neighborhood enterprises, especially those with different energy profiles, may create new industrial clusters also due to energy management. The sustainable development offers new opportunities for new incentives for SMEs to contribute to lower carbon emission activity, but that requires further research on motivator and barriers.

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Correction to: Companies Image Evaluation Using Social Media and Sentiment Analysis



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The author's first name in chapter "Companies Image Evaluation Using Social Media and Sentiment Analysis" was incorrect in the initially published version. This is now corrected and is given as Liviu-Adrian Cotfas.

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