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Richard C. Geibel
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Digital Management in Covid-19 Pandemic and Post-Pandemic Times

Proceedings of the International Scientific-Practical Conference (ISPC 2021)

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Editors

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Abstract This research examines the impact of COVID-19 pandemic on the economies of Georgian regions, particularly with respect to disclosing to what extent digital tools were used for copying from the risks and sustainable development of the regions. According to the research findings, the impact of the pandemic on international tourism-oriented regions has been profound, and this has flowed into other fields through the supply chain, affecting tourism-related production significantly, despite of relatively well-equipped modern internet technologies for customer relations. Medium-sized enterprises proved to be relatively stable in the business sector, but, the decline in entrepreneurial activity in municipalities was partially caused due to insufficient resources available for remote business management and the weak usage of digital operational and marketing instruments. The pandemic had a particularly strong impact on small enterprises making labor-intensive products where digital tools have no usage. The paper defines the main barriers to the development of digital economy, partially a lack of collaboration between the business entities and IT, inability to collaborate quickly and a lack of interoperability, a lack of strategic planning culture and e-literacy, and a lack of financial resources. The research identified the effective mechanisms applied to combat the pandemic and proved that remote communication between customers and businesses requires further support in terms of resources and the development of strategic management based on the use of digital technologies, as well as it requires raising awareness among society. Supporting entrepreneurs through various institutional and organizational mechanisms (e.g. supporting projects, organizing conferences and trainings for entrepreneurs, attracting IT experts to develop the digital economy) from the central government and municipalities will promote introduction of anti-crisis management practices in businesses operating on local level. Moreover, the paper shows that alongside of development of digital economy the new challenge of Georgia is a formation of circular economy which in connection with digital technologies will increase sustainability and economic growth.

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Keywords Digital economy · Covid-19 · Regions of Georgia · Circular economy

1 Introduction

Some consequences of pandemic are already known. In particular, we have seen the bankruptcy of small- and medium-sized businesses, the collapse of the tourism and aviation sectors, a decline in investment, rising unemployment, and rising state debt.

The economic damage caused by COVID-19 is already visible and represents the biggest economic shock the world has suffered in a living memory. The pandemic is reflected in the various economic indicators. The shutdown of most enterprises and the reduction in their activities had a negative impact on the Georgian economy. The crisis has changed the dynamics of economic and social development in the country. Accordingly, the short-term and medium-term priorities for the development of regions and municipalities have been reshaped.

2 Research Methodology and Results

A survey was conducted to determine to what extent MSEs were ready to use digital instruments during the impact of COVID-19. In 2020, in the active phase of COVID-19, micro, small and medium-sized entrepreneurs in all regions of Georgia were surveyed by the National Association of Local authorities of Georgia within the UNDP funded project.[1] Overall, 91% of research participants were owners of small- or medium-sized enterprises, with 49% of respondents being owners of small-sized enterprises and 42% being owners of medium-sized enterprises. Totally, 29% of respondents were employed in trade, 24% were employed in restaurants and food outlets, 16% were employed in the hotel industry, 14% were employed in the manufacturing industry, and 7 and 5% were employed in tourism and transportation services respectively. This distribution is relatively close to the breakdown of employment for the entire country.

First empirical sign of consumption of e-communication instruments were quantity of responses on questionnaire via e-mail. The questionnaire was sent electronically to more than 21 thousand private enterprises in all municipalities of Georgia. Out of these, 40% bounced back due to an inactive recipient email address, meaning that only six out of every 10 enterprises had a valid e-mail address. Thus, the electronic communication seemed to be very weak. The survey revealed that, the level of market integration of small- and medium-sized enterprises is not deep, with small entrepreneurs particularly inactive in e-marketing.

The survey shows, that in each municipality, the main reason for the reduction in production was the pandemic and the accompanying reduction in sales and financial

[1] Detailed results see: Tokmazishvili and Basiashvili (2020).

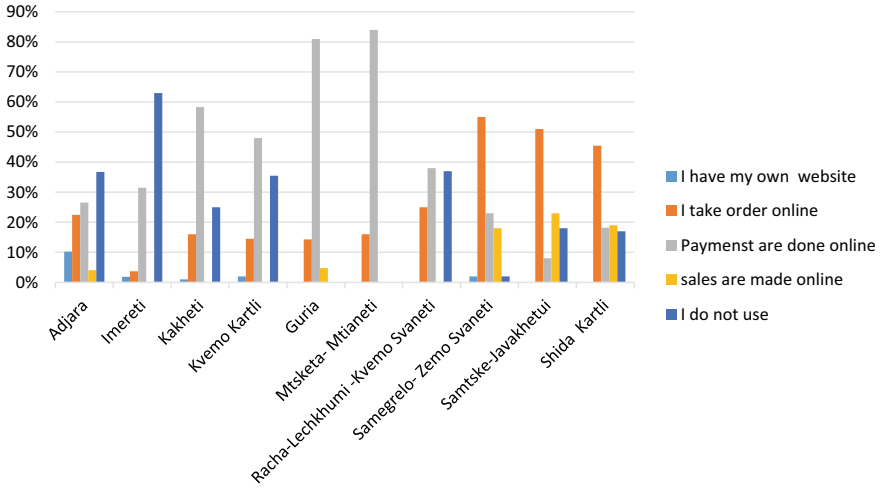

Fig. 1 Internet usage in communication with partners and customers by region (%)

problems related to it. The majority of respondents indicated state and their own efforts as the main resource which will help/assist them in running business.

The survey showed that digital communication is not used effectively as only 2% of respondents claimed that they sell products online, while 50% mentioned that they use electronic transfers only while making payments (Fig. 1).

Entrepreneurs who do not have an access to the internet in Georgia are less likely to succeed under pandemic-related restrictions. Indeed, a lack of internet access and/or proficiency significantly reduces the efficiency of their activities.

Most of the activities of the interviewed entrepreneurs are of a local nature. Their business activities have a short cycle, which negatively affects their crisis management, hinders the process of clustering and value growth, and consequently hinders their integration in value chain.

Nevertheless, the survey revealed the importance of the business network as a supportive mechanism for entrepreneurs. Only a small number of surveyed enterprises have found new ways to deliver their products (mainly online) in order to retain customers in the present reality.

In big cities, only more than 20% of respondents sell products online, while in other cities payments are mainly made online, and they have no plans or resources to use the Internet for other business activities.

Surveyed small- and medium-sized entrepreneurs claimed that they cannot use business networks to promote their products online or for joint advertising. However, some respondents admitted that the Internet would be helpful for their business promotion (Fig. 2).

The awareness of networking as a business empowerment resource was quite high across respondents in all municipalities. The respondents considered consultations, the existence of social support networks with business partners, online support

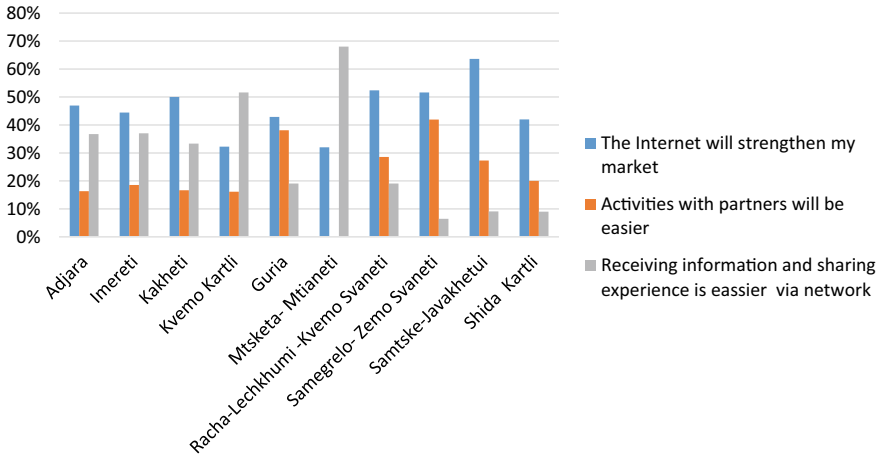

Fig. 2 The importance of the internet in business management by region

in product sales, relations with partners, purchases of raw materials, and dissemination of information about their enterprise as important mechanisms in order to overcome their crisis. Beside the recognition, there is no attempt to communicate remotely with customers and partners, and make intensive use of the Internet and other communication networks for the same purpose.

The new reality requires the establishment of a flexible system to manage the economy. For this purpose, new strategic plans are needed that will effectively manage businesses in times of crisis. However, as the survey showed, enterprises were not ready for the pandemic and had no crisis management plans on place. Approximately 8% of respondents confirmed having an anti-crisis plan (Fig. 3).

A lack of anti-crisis plans was confirmed by the surveyed enterprises in the majority of municipalities. The only exceptions to this were larger municipalities, namely Batumi, Kutaisi, and Rustavi, where some respondents did have anti-crisis plans on place.

The experience gained by the country from this crisis has identified the need for developing Internet services in trade, education, consulting and other fields, and more investment in IT technologies.

The introduction of digital technologies as a measure against the pandemic has become highly-demanded and some enterprises have developed ways to sell products via these technologies. The impact of the pandemic has been relatively small on enterprises, which have introduced sales and other activities online, especially in the trade and food sectors. The crisis has stimulated the introduction of new technologies and business models as well as accelerated the spread of online sales. Although it is impossible to fully switch to a digital and remote form of economic activity and management, its use in isolate conditions should be maximized. Naturally, adapting to network technologies requires sufficient time and resources.

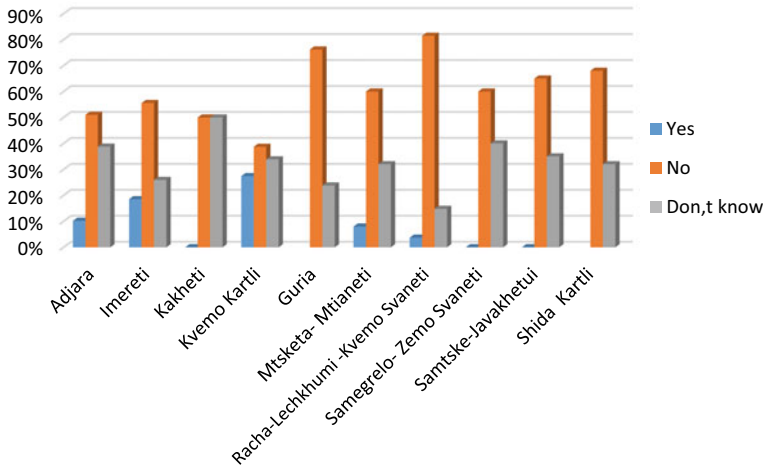

Fig. 3 Do you have an anti-crisis strategy?

The survey showed that social capital, with regard to remote management and entrepreneurship, is not being used effectively. Clearly, being informed about remote working and management is not sufficient. Digital technologies are not used in marketing relationships, procurement, and for providing information to customer. Through using remote management in entrepreneurship in times of crisis, overcoming some business problems becomes easier. This new relationship between civil society and businesses, once formed, creates a sort of "cluster" relationship in entrepreneurship, whereby everyone can safely pursue their interests.

3 Barriers to Advancing a Digital Business

(1) In general, hypothetically, the survey research shows the need to react to the following barriers.

(2) **Lack of collaboration between business entities and IT**. Today's need for business transformation is working together, because digital transformation does not exist in just one location. Business organizations need to be appropriately linked, if they are to succeed in their endeavors.[2] Collaboration between SME on the one hand and IT from another will develop inception of digital technologies in their business. But the question is who can be the initiator?

[2] The Harvard Business Review found that 49% of respondents surveyed identified inadequate collaboration as a challenge on their path to digital transformation. (Greane. https://www.thirdrepublic.com/blog/barriers-digital-transformation).

(3) **Inability to collaborate quickly** and a lack of interoperability. Business organizations cannot react quickly on the needs of digital innovations and introduce it in their business activities, despite the fact that digital innovations are advancing at a boundless speed. Lack of knowledge and lack of consultant groups enhances such gap. For achieving the success, businesses have to be willing to try innovations, try it quickly and have relevant IT consultant suppliers.
(4) **Lack of strategic planning culture and e-literacy**. The survey shows that a strategic thinking culture is a blocker of innovative activities and introduction of digital tools and transformation attempts. Risks, market uncertainty and the need to strengthen at the markets, force entrepreneurs to think innovatively and introduce digital technologies in their business. They are facilitating these changes from the inside out. There is 'skills shortage crisis' and the business entities have inability to apply digitally-enabled solutions that is a hindrance to its developments. There is a need to change management capabilities and entire business. But it does not mean that business leaders know what to do or how to do it. Digital transformation requires vision and strategic planning, for digital transformation. Business leaders are unable to introduce their digital transformation due to lack of skills in technological innovations and lack off collaboration with IT talents.
(5) **Lack of financial sources**. Digital transformation is costly and in order to be innovator and set the benchmark for digital initiatives, businesses need to be willing to invest in the process. But the problem lies not in shortage of funds, but in the lack of digital infrastructure, including Internet coverage, cybersecurity and readiness of credit institutions to give priority to innovations in their financial portfolio packages. In this matter, development of digital public services and institutional assistance to organizations for making innovative approaches easy, is the primary need. Moreover, adoption of legislation for E-commerce, digital contracts, online purchases, etc., will progress the transformation process.

4 Research Conclusions

Today, the sustainability of enterprises is based on digital management, digital strategic knowledge, and financial discipline. Business organizations are unable to conduct business due to a lack of proper knowledge and skills, which is a significant barrier to increasing competitiveness among entrepreneurs. Implementing a remote management requires awareness raising about digital management and networks among entrepreneur in order to understand how to obtain a benefit from them. Business relationships with customers should be maintained digitally. To this end, it is necessary to raise **awareness** on digital business issues and crisis management in order to improve entrepreneurship skills and to expand commercial relationships and partnerships with business networks. It is also important to develop information delivery channels as well as **consulting institutes and networks**, and to develop **strategic plans** in both state and entrepreneurial sectors. At the same time, retaining

customers requires companies to establish new communications and effectively use communication channels and social media such as Facebook and Instagram. In addition, there is an increasing demand for ordering and no-contact services with mobile applications, the development of on-site delivery services, switching to network channels, the use of Internet sales and purchasing platforms, and cooperation with experienced Internet sales platforms (such as Glovo and Wolt). Risks and losses could be minimized through offering such services.

Companies are trying to adapt their business models according to their needs and opportunities. In order to increase sales (particularly for trade, restaurants and food establishments, as well as suppliers of various industrial goods) it is necessary for enterprises to switch to Internet services. The development of e-commerce business platforms with both consumers and businesses would ensure the introduction of effective ways to sell products and the **digitalization of supply chains**. Projects initiated by central and municipal governments to introduce these tools would help entrepreneurs to develop digital entrepreneurship. Currently, entrepreneurs are responding to COVID-19 only with short-term and spontaneous measures. However, the success of entrepreneurs in the future will depend on their longer-term strategic plans and risk management. This is particularly true for small- and medium-sized enterprises.

As the research has shown, **knowledge of the digital** economy is poor among entrepreneurs and its capabilities are not exploited properly to save their businesses. Thus, it is necessary to offer entrepreneurs specific digital technologies tailored to their activities. Meetings with experts, conferences, and other events organized by municipalities would help local entrepreneurs to increase their awareness and help them to determine their strategic goals. In the process of value growth, engaging in partnerships in an electronic format and cooperation among enterprise clusters via the Internet are good preconditions for attracting financial and material resources, and strengthening production flows from one value chain to another. This would make the entire chain attractive to banks and credit institutions when it comes to issuing a credit, which would help entrepreneurs to remain viable. Targeted collaboration with industry associations, government agencies, and training and consulting institutions would enable them to participate in the value chain. In the process of overcoming barriers to the development of small- and medium-sized enterprises, the establishment of business associations plays an important role, as does the development of institutions which help entrepreneurs in receiving and exchanging knowledge, information, and other services.

It is important to involve municipalities in the implementation of digital technologies and to develop a long-term vision in order to respond to new challenges. It is also necessary to re-channel the medium- and long-term strategic plans (mid-term development plans) of the municipalities and to develop priorities that will help local entrepreneurs to operate smoothly in response to modern challenges.

Transit to the Digital Circular Economy. Today, Georgia focuses on the circular economy. To this end, it has begun to develop its strategy, which is currently in its early stages. Two dimensions—digitalization and the formation of a circular economy—are interconnected with innovative projects that create new challenges for the country.

Circular economy is the axis of the green economy which is aimed at upgrading the existing production and consumption systems, and focuses on optimizing the functioning of products and materials. It ensures the prolongation of the production cycle through reduction of waste and recycling.

Digital technologies enable the creation and processing of data and information for a circular business model and serve to meet the complex requirements of circular supply chains. It helps to raise the circular economy. The goals of the circular economy are to optimize functioning of production. Production, sell, and post-sell services are based on digital technologies. At the same time, the circular economy provides the vision for the long-term sustainability that is necessary to boost the digital industry.

The connection between the digital and circular economics is the perspective challenge that connects data levels with circular businesses. Data collection is the starting point. It goes on to integrate data and merge them into the right framework. Finally, data is analyzed and knowledge is created from information. Each of these levels can be linked to specific material management strategies in the circular economy. At the lowest level, information is collected to describe the use of material resources or the status of the product. Data integration then provides a shorter overview, which is critical for the transition to diagnosis and evaluation. If we want to identify predictable or subscribed materials and product management, data analysis is unavoidable. These levels of data processing can be transposed into different circular strategies, this framework proved to be very important for the transparency and for understanding of digital circular economy in the dialogue between the both IT experts and circular economics experts.[3] At the same time, the adoption of respective legislation will contribute to effective introduction of circular economy because, barriers to digital services hinder the development of circular business models also. Donating unused or reusable products from e-commerce, for example, is unattractive to businesses when they are charged with additional value added tax. As a result, stakeholders (e.g. e-retailers) are incentivized to discard or destroy unsold products since it is cheaper than donating goods.[4]

Forming a digital circular economy requires integrating the principles of circular economy management into the value chain of digital products. It allows to compete and spread knowledge about circular economics. Sustainability strategies today are mainly focused on the energy efficiency and product life (or the lifetime of its core elements). And the circular economy is oriented towards the dematerialization and processing of wastes. The combination of digital and circular economies is becoming a challenge for the future, and it is already focused in the EU.[5]

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[3] How to Transit to a Digital circular economy? https://www.gstic.org/inspiration/how-to-transition-to-a-digital-circular-economy/.

[4] Hedberg and Šipka. https://wms.flexious.be/editor/plugins/imagemanager/content/2140/PDF/2020/DRCE_web.pdf.

[5] Reports of European Policy Center, see: https://www.epc.eu/en/publications.

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The Impact of the Covid Pandemic on Consumer Ethics and Corporate Responsibility

Hendrik Müller

1 Introduction

The corona crisis so far has had among many other things an enormous impact on consumer behaviour and corporate responsibility alike. Consumers were especially affected by the crisis as stationary shops were closed during long times of a national lockdown and during these phases online shopping became the norm. Although this trend has definitely started many years before COVID-19 the pandemic has clearly reinforced certain developments. According to a survey of about 3,700 consumers in nine emerging and developed economies (Brazil, China, Germany, Italy, the Republic of Korea, Russian Federation, South Africa, Switzerland and Turkey) the pandemic has changed the way consumers use e-commerce and digital solutions: More than half of the survey's respondents now shop online more frequently (UNCTAD 2020). A recent German study found out that the majority (79 percent) of customers is willing to maintain some of the shopping and consumer habits developed during the pandemic (IAS Pandemic Effects Report, 2021). Yet many effects in the long run are not foreseeable at the moment, but without doubt the future of shopping worldwide will be more digital and less personal. Especially smaller businesses have been affected in the last months by this change and many stationary shops have not or will not survive the crisis.

On the other hand, COVID-19 is also a game changer in respect to the development of the concept of corporate responsibility commonly referred to as Corporate Social Responsibility (Rasche et al., 2017, 1–28). While in the last 20 years before Corona started a growing number of companies across Europe took their social and ecological responsibility more seriously and so they increased their activities accordingly, the

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pandemic has also led to a change here and significantly altered the character of the acceptance of responsibility activities among business leaders.

This paper wants to explore in what way consumer patterns have changed since the outbreak of the Coronavirus and if the pandemic has enforced a more sustainable way of living among customers. It also wants to analyse the effects of COVID-19 on the way companies perceive their responsibility.

2 Theory

Since the outbreak of the Corona pandemic in spring 2020 a number of articles have been published on the general question how the crisis has changed consumer behaviour and the way corporations see themselves in the duty to react to the social and economic challenges of the presence and more urgently the future. So, it is worth mentioning and combining some of the results that researchers have found out and published in the last 18 months,

A: Consumers

According to Cambefort (2020, 5) three trends in respect to consumer behaviour could be identified: First of all the downsizing of consumption, furthermore the emergence of anti-globalization sentiments, and finally negative consumer reactions to the misconduct of brands and/or companies. Whereas the value of this argument is certainly a question of ideology, Cohen (2020) argues in a more general direction and claims that the COVID-19 outbreak might mark the onset of a sustainable consumption transition: "COVID-19 is an opportunity to reduce over the long term the prevalence of lifestyles premised on large volumes of energy and material throughput" (Cohen, 2020, 2).

In this light the results of a survey using data from 451 German consumers that have been published by Koch, Frommeyer and Schwewe (2020) with the aim to examine the relations between normative, utilitarian and hedonic motives, are very interesting concerning the intentions of consumers, The results show that it is not the normative influence of close social networks, but determinants such as media reports on the economic situation that are related to consumers' purchase intentions. The authors have also found out that "hedonic motives exert the strongest influence on generation Y and Z consumers' behavioural intentions to shop online (Koch et al., 2020, 13). On the other hand, it becomes clear that media report on climate change and the need for sustainability have a direct influence on the conscience of many consumers.

To help consumers in their choice to exercise their shopping in a more sustainable way Parente (2020) suggests a way that allows clients an insight into each step of the production process and the supply chain: "Digital technologies made it possible to create a link between being better and able to communicate the value created for customers and the social basis on which such values rely" (Parente, 2020, 61).

This means that with the help of digital technologies the two sides of corporate and consumer responsibilities can be reconciled and connected with each other.

B. Companies

For many companies, regardless of their size, economic responsibilities during the COVID-19 pandemic certainly played a much more important role so far than their traditional social or ecological commitments. This is party related to the difficult situation many companies had to face when confronted with closures, short-term work and changing consumer patterns as a result of local or national lockdowns.

But He and Harris (2020) have found out that the Covid-19 pandemic offers a great opportunity for businesses to shift towards a more genuine and authentic Corporate Social Responsibility (CSR) and many companies have seized this opportunity. The authors likewise agree that the "pandemic has given opportunity and time to the consumers to reflect on the basic meaning of consumption and the impact of their consumption not just on themselves but on others and the general society and the environment" (He & Harris, 2020, 178). Corporations are to embrace this change and contribute to address urgent global social and environmental challenges. These results are met by the collection of case studies the German-based Bertelsmann Foundation has published in 2020 to show the variety of ways in which companies have taken responsibility in the face of the pandemic (Bertelsmann Stiftung 2020). So, there is a undoubtedly an interlink between both developments.

3 Research Method

Based on the assumption that the COVID-19 pandemic will have a lasting effect on consumer behaviour and wanting to prove that the increasing and in times of social lockdown necessary use of digital devices has sustainably triggered the transformation of consumption patterns, this paper has on the collected the results of a number of national and international surveys on the impact of the corona crisis on consumer behaviour, on the other hand it has tried to critically examine the results for their significance and highlight general trends.

By singling out the survey conducted among German consumers by the researchers of the Hamburg based Otto Group (2020) this paper will try to get a broader and more balanced picture on the effects of the Corona outbreak on consumer behaviour, as this is the fifth study in a series of surveys on consumer patterns in the last 15 years.

4 Case Study

Since 2007, the Otto Group has published regular reports on consumer behaviour in Germany. In 2020 the 5th report, which has been based on a nationwide survey of 1,

148 people aged between 14 and 70 nationwide, shows clearly that many Germans aspire to a more conscious living. This result is even more important as it proves a trend that has been attested in earlier trend reports of the Otto Group. As the latest one has been developed during the corona crisis it proves that even in time of uncertainty ethical consumption behaviour is becoming an becoming popular and normal. To single out some of the key findings of the study (Otto Group, 2020):

1. 70% of the respondents in the current trend study state that ethical criteria have become an integral part of their purchasing decisions
2. 20% state that they have shopped more consciously since the start of the pandemic. In addition, sustainable principles have become increasingly relevant in online shopping
3. 73% think it is good to buy or sell used things such as worn fashion or old furniture. 54 percent of respondents plan to borrow more in the future.[1]

Another important results of the latest research on ethical consumption is the fact that the more people shop online, the more they develop ethical claims towards traders with regards to their social and ecological standards. The Otto study clearly proves that consumers also consider the corporations' responsibility: e g 68 per cent would boycott a provider that offers its employees poor working conditions. The attitude of companies towards people and nature, as well as towards issues affecting society as a whole, is becoming a increasingly important part of the purchasing decision.

To sum up, customers more and more expect companies to take on more responsibility and implement a comprehensible and verifiable value orientation. In response, customers are increasingly willing to pay for this.

5 Results and Discussion

As the review of the various studies on the impact of the Corona pandemic on consumer behaviour has shown, certain trends have intensified that were already apparent before the beginning of the year 2020. On the other hand, there are also more unforeseen developments, especially on the part of companies which have reacted to the crisis in different ways. The results of the Otto Group survey have stressed that consumer behaviour will adapt more aspects of borrowing and sharing, a development that has been as proclaimed as an alternative to CSR for many years and that in the digital age gained new importance (Aigrain, 2012, 27).

But the assumption of the Otto Group study stands in sharp contrast to the results of an Italian survey (Degli Esposti et al., 2021) which shows that after the COVID-19 outbreak, perception about safety changed and people are less prone to use shared opportunities like public transportation and car sharing. On the contrary, an owned car is perceived as the safest mean of transportation. Among the motivations leading to a

[1] Whereas in 2013 52% of respondents were willing to share, swap, borrow or buy second-hand items more often, in 2020 this figure has already risen to 64 percent.

different usage of collaborative consumption practices, 67 percent of the respondents have argued it is related to fear (Degli Esposti et al., 2021, 9).

A problem that affects both companies and customers equally is the eco-balance of packaging and transport, yet the pandemic has once again brought to light comparable social problems in the production process and in supply chains. Only an entrepreneurial orientation that strives for sustainable innovations combined with an orientation on the humane will pave the way to a better future for companies, their executives and employees and customers (Parnete, 2020, 61).

6 Conclusion, Limitations and Further Research

Without question the Corona pandemic has changed a lot of things when it comes to consumer patterns and has put for many people the topic of sustainability higher on the agenda. Yet it has also stopped or at least decelerated promising developments like sharing economy due to safety doubts on the side of the customers.

This paper deliberately refrained from conducting its own survey and is based solely on a comparison of recent studies on the effects of the Corona outbreak from the years 2020–21. Such an undertaking can, of course, only provide a partial view and thus only show tendencies. Yet, by identifying similarities, reasonably valid results can be obtained. Nevertheless, it should be noted that we are still in the midst of the pandemic and therefore a final and reliable assessment of the effects of COVID-19 will only be possibly after the pandemic has ended globally.

Undoubtedly, the issue of individual responsibility will retain its importance, especially in view of the enormous challenges we are facing given the limitations imposed on humankind by climate change. Nevertheless, it must always be considered that the responsibility of the individual consumer is itself restricted in the end and that a favourable development mentioned only be achieved in harmony with companies and corporations.

COVID-19 has been called in analogy to Taleb (2008) a 'Black Swan Event', i e a shocking event with the potential to change the world. Yet, in the light of the impacts of the global climate crisis and as the virus itself is linked with human-induced changes to the environment (Anderson & Rockström, 2020) we may better refer to it as a 'Green Swan Event' (Elkington, 2020) that has one clear message to offer: Although there is no such thing as a perfect ethical consumption (Lemke, 2013, 20) we must radically transform our consumer patterns and corporations in the same way must increase their responsibility for a drastic social and ecological change. Otherwise we may learn the hard way that COVID-19 has only been a foretaste of much harder developments that we and our descendants have to meet.

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The Importance of Digitalization of Legal Documents Preparing Process and Its Impact on Peoples' Legal Guarantees

Levan Gorelashvili

Abstract Legal document preparing method has not been progressed since the time it was invented and it still is done by human lawyers manually. This manual method of preparation makes legal documents expensive, time-consuming and overall unpleasant for the customers, which is why mostly they refuse to use it at all and put legal guaranties of their life on a risk. **This paper explores possibility replacing human lawyers' necessity by digital (tech) products during legal document preparation process and its positive impact for peoples' legal guaranties**. Here will be discussed strong and weak sides of changing the current (traditional) method of preparing legal documents and potential of developing digitalization legal document preparing process in all legal professions (for attorneys, judges, notaries etc.). Implementing and developing of the system discussed below will be attempt of updating the way legal documents are prepared and beginning of making legal documents tech based.

Keywords Digital law · Cyber law · Tech alternative of lawyers · Legal documents

1 Introduction

Imagine there is no calculator invented and people are asking for help to human mathematicians for getting calculating services and calculate their interesting numbers. It would be hard enough even to imagine how the chain starting from this point will effect on our everyday routine. But, by the way people are doing absolutely the same when they need to have legal documents around their individual cases. They are asking for help to human lawyers.

Legal document preparing service is one of the most common service line individuals and business representatives getting from the lawyers, beside legal consultation, representation, etc. Legal document is a place where lawyers' legal knowledge and experiences are assembled to protect and guarantee harmony of peoples' legal future.

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Lawyers need to concentrate all their professional knowledge and experience around their client's legal case to cover all the risks and threatens coming from each of legal transaction, and manually create relevant legal document. All of these makes legal documents preparing process very time-consuming and while in this process everything is done manually by human lawyer, the service becomes quite expensive too.

When the first elevators were invented, they were driven manually by the people with special knowledge of driving elevator, opening and closing the doors and making elevator to go up and down the floors, etc. But, further technological development in this industry made it possible for the people to use elevators themselves without additional help from elevator professionals. For matching with the rapid development of the digital economy, legal document preparing process also needs to be upgraded technologically in the same way, to make process faster, cheaper and more comfortable for the service consumers.

Here is a ground digitalizing of legal document preparing process is coming from. Cyber Lawyer idea sounds like something from the future, but in the technological era we are living currently gives us enormous opportunity at least to try and make legal document preparing process automate and simple like a using calculator.

For legal professionals—whether they are a solo practitioner or a partner at law companies, document automation software can potentially have a staggering impact. In late 2015, University of North Carolina School of Law professor Dana Remus and MIT professor Frank Levy stirred interest in the legal world with their paper entitled, "Can Robots Be Lawyers? Computers, Lawyers, and the Practice of Law." In their paper, the professors illustrated how long attorneys spend on each task and found that time spent on preparing legal documents can be reduced by 19%.[1]

2 What It Means to Digitalize Legal Documents?

According to Gartner's IT Glossary, "Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities." Automation is also a major part of the digitalization story, whether it be shifting work roles or transforming business processes generally. Document automation is the process of automating different types of document creations that would otherwise take considerably longer to create manually. It's a significant time-saver and eliminates the risk of human error, making processes much more efficient, allowing businesses to focus their attention on more important matters. Most lawyers can agree that there never seem to be enough hours in a day to complete everything that needs to be done. Automation makes it possible for lawyers to take control of their schedule and let software handle the busy work.

A host of innovative legal-tech companies have entered the market of legal service providers, presently challenging the lawyers' monopoly over the practice of the law

[1] Remus and Levy (2015).

and, ultimately, altering the mode of production in the legal field. The result is that such firms are not fully exploiting the potential that new technologies offer to legal practice, and they thus risk losing the dominant position in the market of legal service providers which they enjoyed since the early twentieth century.[2]

Legal professionals know that lawyering often involves tedious paperwork. That's where document automation comes in. Document automation allows you to automate document creation with the help of intelligent digital "legal brain". In the legal sector, it provides a centralized process of producing contracts, letters, agreements, business documentations and other legal documents. In general, document automation helps in creating a high volume of documents in a short period of time while being compliant and maintaining a consistent brand.

Legal document automation is essential for improving and optimizing the way lawyers run their practice. On the other hand, document management ensures that the document is easily accessible, well organized, and secured.[3] It is obvious automation and digitalization of legal document preparing process offers countless advantages comparing with the traditional existing method of it, but firstly, lets analyze what current method is asking from the customer to overcome for signing desired legal document. Traditional way of getting legal documents from the lawyers covers follow couple of unpleasant steps:

A. **Firstly, people need to find proper lawyer**. There are no universal lawyers, who will be evenly experienced in the different filed of law (like a doctor, who might have general knowledge in all field of medicine, but their work is focused on smaller field of healthcare);
B. **Check lawyers' feedbacks**. Law is one of the most popular faculties in the universities and thousands of new lawyers are adding to the profession yearly and starting offering legal services to society. It's quite hard to distinguish for legal service seekers one lawyers' level from another when they have faced it the first time in their life. So, they need to collect past information around their chosen lawyer. Otherwise, they need to go in big law companies to feel they are more secured, but in this way, they need to splash big cash, which is also barrier and making people think twice before deciding;
C. **Arrange time to meet**. Generally, lawyers are busy enough to be able to meet their clients when they are willing to meet. In most cases lawyers are dictating their preferred time and clients have to accept it;
D. **Explain the full story around the case to the lawyer**. It is like an interview, clients are telling their stories, then lawyers are asking the questions, considering of which answers they think are important for preparing legal document.
E. **Wait, wait and wait**. After every step is behind, clients need to wait a long until the final document is prepared by the lawyer. Good contract is like a painting, more time you are spending on it, better quality you are getting. So, waiting your document to be prepared manually is unavoidable. It's simple to understand for

[2] Caserta (2020).

[3] Sidorenko (2020).

lawyers, but hard to catch by the customers. Legal document preparing service seekers expecting process to be able to quickly deliver the detailed documents they need to resolve their legal issues.

Part of a lawyer's job is creating often complex documentation that can take a considerable amount of time to draw up manually—sometimes hours to days. With so many other tasks already on a lawyers' plate it can be difficult to find time to do it all. Automation and digitalization platforms for creating legal documents are a powerful tool that can save lawyers a tremendous amount of time on tedious work by automating documents with a few clicks on a button. Such kind of software is a game-changer for law firms of all sizes who are looking to take on as many clients as possible without missing a beat.

Digitalizing legal documents preparing process simply means to find digital ways of completing all tasks and processes that were previously paper-based and required physical communication between parties. Nowadays, we are ordering food, buying goods, renting rooms, getting taxi services and etc. without even single physical communication to the second party and it's a fact people are loving to do it. The hard truth is that human lawyers that fail to adopt new technologies and continue to operate under archaic business models risk being surpassed by competitors and seeing their client and profit bases dwindle.

If there might be the way to describe your story around your legal case to the lawyer, answer lawyers' questions, pay the service fee and get legal document based on your story and answers all digitally, it would be the perfect execution of digitalizing legal documents preparing process.

3 How Can Legal Documents Transform Digitally?

Today's legal marketplace is more crowded and competitive than ever, so law firms and solo practitioner lawyers must find ways to differentiate their services and approach from those of their competitors. Document automation delivers significant benefits to lawyers and their clients—helping them to be more targeted and strategic.

For better understanding, firstly, we need to think about what is a legal document itself? The simplest and the most pragmatic definition of legal documents is "combination of legal meaning clauses". Such kind of clauses may exist with millions of variations, but for the one concrete case we are choosing only the relevant ones. If we double-click on this, we find out that document automation systems are fundamentally doing two main things when they create a contract, depending on the answers given by the user: The first is replacing parts of the text with answers got from the customer, for example inserting the name of a party into the contract (these are variables); and the second is including or excluding blocks of text depending on the answers, for example a clause will only be included if it is relevant (these are optional clauses).

We are going to cover these steps below, because it's helpful to understand how these systems work technically in this model, which combines 3 essential parts:

A. The first is "Questionnaire". There should exist a place where customer will have an opportunity to answer legally important questions around their individual case (with possibly additional logic so that only relevant questions are asked, depending on answers to previous questions), which will help "Cyber Lawyer" to distinguish which kind of articles (regulations) should be used in the content of the legal document. This part must be responsible for collecting all necessary information around customers' individual legal case, based on which legal document should be prepared;
B. The second part is "Legal Database" (or "Clause Library"). This is a place where different legal articles and clauses are saved for millions of variations customer might need in the document for covering their legal necessities. Of course, it will never be 100% enough for every single case customer theoretically may need in their cases, but more articles added to the "Legal Database", less manual intervention might need from human lawyer to get a final version of legal document. Legal articles in the "Legal Database" should be added by human lawyers, who have proper knowledge and experience for preparing individual legal document (like lease contract, labor contract, etc.). "Legal Database" should be a place where various human lawyers' knowledge and experience will be combined and saved for the customers' case they might need for the legal documents around their needs.
C. And the last one is so called "Matching Function". This is a final part of the puzzle, where software connects customers' answers to the legal articles in the "Legal Database". It's kind of a logic that specifies when articles should be used, depending on the answers to questions. It will distinguish only the relevant articles from the "Legal Database" and combines them structurally in the document, which will give the final view to the legal document and makes it ready to sign. The "Matching Function" part of the software is where document automation starts to look like programming. But really this is usually very simple programming, along the lines of: IF the user answers "customer" to the question "Which party will own the IP rights created under the services contract?" THEN include the IP transfer clause #1 in the contract.

These 3 main parts of digitalization will create possibility traditional method of preparing legal documents to be replaced with its' digital analog and as a result, customers will benefit to get digitally prepared legal document around their individual case, faster, cheaper, 100% errorfree and even in a more qualified way, than the one manually drafted by human lawyers.

Document automation requires bringing together legal expertise in the subject matter and technical expertise in the system. Ideally this is in one person, but the reality is that the editing systems are still complex enough that you can't assume that every lawyer is going to learn to automate their documents. The best outcome in practice is that a legal expert, who understands enough about the system, works

with a technical expert, who understands enough about contracts. The more legal background the technical expert has, the better outcome comes.

4 Benefits and Importance of Digitalization

Many business deals are done by a handshake. Handshake deals work fine—until they don't. A written contract ensures that all of the terms of your agreement are documented. If a disagreement arises, there will be a document that the parties can refer back to in order to get the relationship back on track. In short, a solid written contract can save money and strengthen a business relationship by helping to avoid litigation altogether. To summarize, legal documents are very important for legal guarantees customers need for their safe legal future.

But what could be the reason some people still deciding to make verbal agreements over written contracts? The one of the most important consideration with any decision is cost. Lawyers are too expensive to be affordable by most of people. It's not unheard of for senior attorneys to charge $500 or more per hour these days. For most people, that seems like an astronomical amount of money. There are dozens of reasons for it, but top reason is that contracts are "handmade", generally, it's done manually and even simple looking contracts can be the result of working couple of hours on it. Most of law firms are operating under a business model where lawyers are spending much of their day on time-consuming tasks like researching and drafting contracts and other detailed legal documents.

It's easy to conclude that making legal document preparing service cheaper, will allow more people to start using it and as a result it will make significant difference on peoples' legal safety. So, what can be done to make the cost of legal documents preparing process more reasonable? The answer is simple: Digitalize it.

Digitalizing and automation of legal document preparing services creates a lot of advantages over its traditional analogue. Making this process cheaper is obvious result digitalization is promising to bring, but while there are countless other advantages, let's analyze some other possible key benefits of document automation include:

A. **Faster Document Generation**—Creating a contract using digitalized platforms takes a few minutes. It can also be used, with the right contracts, to allow the business to create a contract without needing to refer to legal. There is huge business value in speeding up entering into contracts. Document automation can save a significant amount of time. Lawyers have reported up to 82%-time savings when using document automation to generate contracts and other legal documents.[4] Spending less time creating contracts frees up to deliver more and makes other job more interesting as people can focus on the more complex work.
B. **Reduced Errors**—Unfortunately we all regularly make mistakes. When lawyers are forced to create legal documents from scratch—or copy and paste a new

[4] https://legal.thomsonreuters.com/en/insights/articles/document-automation-saves-time.

document together from other sources—it increases the likelihood for slip-ups or omissions. Document automation removes many of those opportunities for errors. Document automation producing documents are accurate and consistent. Document automation also brings a rigor that ensures that the key issues are addressed in every contract, rather than relying on the user to remember—it acts as a checklist. It also helps ensure that previous deal documents, where key provisions were removed as being not relevant, aren't used as the basis for the next agreement.

C. **Increased efficiency**—The most obvious benefit of automating documents is increased efficiency. With document automation, people can create a wide range of legal documents in a fraction of the time it previously took. If you currently create and recreate similar documents for your clients, you are well aware of the dangers of working on more than one at a time. If copy and paste is your method of choice for quickly drawing up a contract or a will, you probably have inadvertently copied a wrong name or outdated verbiage.
D. **A better customer experience**. For better or worse, speed of delivery is something clients increasingly expect and demand. Being able to produce customized legal documents quickly provides a better experience and improves client satisfaction and retention.
E. **More qualified contracts**. Law practice is a developing field, which means that some clauses in the contracts today, may seems to be out of date for tomorrow. Legislation is modifying, court decisions are altering the understanding some parts of the law, even single private contractual relationship creates new legal experience, which causes modifying and translating all of these improvements into the documents done afterwards, adding new clauses into the legal documents. In case of manual drafting of the legal documents, lawyers need to rely on their own memory, but for the automated platforms it is easy to save all of these in one place and remember it forever until it is changed by new additions. Also, it creates possibility to unite group of human lawyers' legal knowledge and experience in one place. It's like a "united brains" which exports more qualified legal documents in different field of law.

Digitalization is no longer the future of business, but the way to go for today's business. However, we do not necessarily mean that documents drafted manually are "bad", and businesses should immediately adopt workflow automation solutions. But one thing is clear, using a manual system in a digital word is a race to the bottom. Manually drafting long, repetitive legal documents for customers can quickly become a waste of time and resources. Fortunately, there is an obvious solution to this problem: Document digitalization.

5 Conclusion

Considering all discussed information above, it looks obvious digitalization of legal document preparing process has no alternative. It simplifies whole process and makes it affordable, so altogether increases accessibility on legal documents, which will have only positive impact on peoples' legal security in case of any disagreement arising from some contractual relationship we are entering several times in a day. The digitalization is promising to bring enormous advantages and facilitations for society and the economy. Automation of document preparing process removes barriers for people who weren't able to overcome and therefore were gambling on their own legal life. Digitalization also has an opportunity to develop as a DIY model, which will simplify the process even more and makes even non lawyer customers able to handle creating professional legal documents themselves, without referring to the human lawyers. Digitalization creates values not only final customers are going to love it, but it would make even bigger difference for law firms as well, who need to use twice more human resources to handle creating legal documents manually. Speed of delivery is something clients increasingly expect and demand. Being able to produce customized legal documents quickly provides a better experience and improves client satisfaction and retention. Today's clients are technologically savvy and expect a lot—and document automation can deliver on these expectations. And it's not only customer service level result we are getting from digitalization of legal document preparing process, but its consequences affects peoples legal guarantees and have positive impact on it.

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Stakeholder Interests in the Support Landscape of for profit Incubators

Robin Kracht

Abstract Incubators have become an important factor in the national economy, especially in recent years, and are thus also drivers of economic recovery (BMWi 2018, p. 26). The use of different resources, whether monetary, intellectual or material, can lead to disproportionate success, because startups with digital and highly scalable business models are often found in incubators. These require an optimal support landscape within the incubators, which is created by the various stakeholders, each with their own interests. The interests of the stakeholders, which also include the startups themselves, result in their goals. The degree to which goals can be achieved is limited by the availability of various resources or factors such as time, money and infrastructure. This creates conflicts of interest among the various stakeholders. Therefore, it is important that in the first step the interests of the key stakeholders overlap as much as possible. So that synergies can be used among each other. In this way, success can be fundamentally guaranteed for all stakeholders involved.

Keywords Stakeholder · Incubators · Interests · Types of incubators · Startup support landscape · International comparison

1 Introduction

When considering German incubators, the different types must be taken into account. On the one hand, there are in-house incubators, where innovations are to be generated within the company's own business areas. On the other hand, government-sponsored incubators often promote a broad selection of ideas and concepts that meet the incubator's predefined requirements. In addition, there are specialized incubators that exclusively support startups from one industry. Examples of this are InsurTechs, LegalTechs or PropTechs (Schwartz & Hornych, 2012, pp. 179–182). In this research work, however, only for profit incubators are considered, which have been founded

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by individuals or companies. These can also have focal points, but the overarching goal is the same. To operate a profitable business model (Millette, 2020, n.p.).

When looking at these, it is noticeable that they have had less success compared to other countries.

Is this due to the lower willingness to invest in Germany and the associated less rapid growth potential, or can it be attributed to the incubator support landscape? (Galbraith et al., 2019, n.p.). This is because, especially in the environment of for profit incubators, many stakeholders with different competencies and interests can be assumed. These have a significant share in the success of startups, however, when leaving the support landscape, you can also have a negative impact on the entire environment (EY, 2017, pp. 13–25).

Ultimately, the profitability of the incubator is a priority for incubator founders to sustain the entire construct. Therefore, entry analyses of startups are important and even essential, especially for profit incubators, but may not be sufficient due to misallocations as well as misperceptions of status quo and necessary support needs. (Cohen, 2013, pp. 19–22) As a result, the incubator loses time, money and blocks resources, which can lead to a threat to the entire incubator ecosystem. To ensure that for profit incubators do not jeopardize their continued existence, it is necessary to address the issue of stakeholder interests.

For this reason, the overarching goal of further research is to develop a grounded understanding of the interests of the various key stakeholders in the support landscape of for profit incubators (Crisan & Salanta, 2019, n.p.).

2 Theoretical Approach

The main components of this work are the topics “stakeholders” and “for profit incubators”. These are examined and described in more detail below in order to ensure a uniform understanding among readers about the topic described here.

Stakeholder

In the context of this consideration, stakeholders are all persons, groups or institutions involved in for profit incubators. These include: Incubator founders, employees, startups, external and internal coaches, investors, lawyers, tax advisors, government, etc. The core here consists of the initiators of the for profit incubators and the startups. In the environment to it all other stakeholders are to be found. The following figure provides the reader with an overview of the support landscape from the current research standpoint (Fig. 1).

An initial literary examination of stakeholders in the for profit support landscape suggests that opportunistic stakeholder behavior is permitted. However, this assumption must be examined from two angles.

On the one hand, from the side of the startups who, for example, want to exploit funding programs and infrastructure of incubators, use smaller programs to bridge for more extensive programs, create a reference or access to the expert network

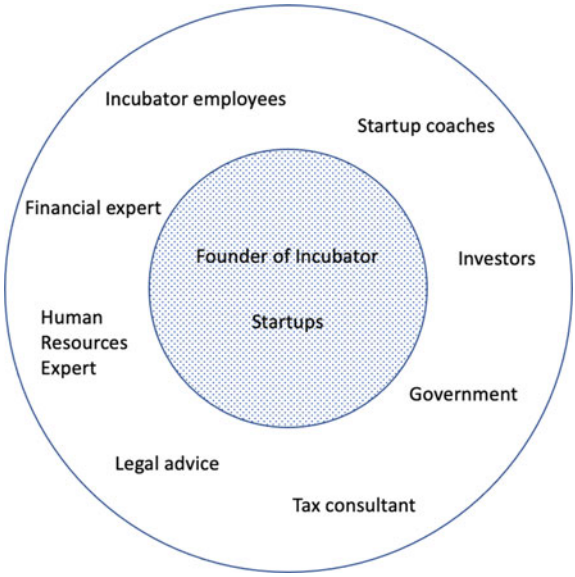

Fig. 1 Stakeholder of for profit incubators

(Lange & Johnston, 2020, n.p.). On the other hand, for a holistic overview, however, the other stakeholders in the support landscape should also be considered. Know-how that internal startup coaches and employees have built up can be quickly lost through a job change if it is not conserved or transferred. In addition, many stakeholders' salaries are also often unrelated to startups' performance or results. External coaches, for example, may benefit from their own business models regardless of the success of the startups, indicating that different interests exist. In contrast, the attractiveness and also the selection of startup companies for investors must be great so that they do not orient themselves geographically elsewhere.

For profit Incubators

Incubators are also particularly interesting for founders who are still at the beginning of their independence with their idea. Among other things, incubators provide access to a network of experts and support in marketing and further development of the business model. In addition, the infrastructure, through the provision of workstations and the use of meeting rooms is also made possible (BMWi, 2018, pp. 48–49). It should be noted that various forms of incubators exist. Government-sponsored incubators, in-house incubators, specialized incubators, and for profit incubators. All have the same core objective—to transform an idea into a profitable business model—but the operators of for profit incubators have the greater risk in supporting startups, as they represent an economically independent company and must generate profits through business activities (Heinrichs et al., 2014, pp. 4–6).

The preliminary definition of for profit incubators in this research is: For profit incubators in the context of this work are exclusively organizations indirectly and directly financed and controlled by natural persons.

3 Methodology and Data Collection

For an understanding of the relevant stakeholders and their respective interests in relation to their own success and the success of startups, a literature review is first conducted. The identified interests of the stakeholders also directly result in their goals. The respective degree of goal achievement, in turn, is limited by the availability of different resources/factors. Consequently, by shifting the availability of these resources/factors, the degree of goal achievement increases. Therefore, based on the results, various research hypotheses are identified and justified.

Corresponding to the established research hypotheses, a questionnaire is designed. A qualitative content analysis based on expert interviews is conducted in a semi structured manner to substantiate the practical relevance of the research hypotheses and to show an indication of the validity of the identified potentials (Mayring, 2015, 209–213). In doing so, parts are standardized from the interview guide in order to guide the interviewees thematically, but not to restrict them. Further questions are adapted situationally to the interview partner. The selected interview partners will be from the direct environment of for profit incubators. The interviews are intended to uncover background information on decisions, behaviors or motives.

With the help of the expert interviews, an empirical test of the research hypotheses will be carried out. The hypotheses are to be verified or falsified (Lakatos, 2013, n.p.). Finally, a broader understanding of stakeholder interests in for profit incubators will emerge and initial qualitative data will be collected.

4 Case Studies

In den letzten Jahren sind weltweit bekannte Startups aus for profit Inkubatoren entstanden und haben dabei völlig neue Geschäftsfelder erschlossen sowie bestehende Geschäfsfelder obsolet werden lassen. Airbnb, Dropbox oder Twitch sind internationale best practices in diesem Bereich. Deutsche Inkubatoren haben ebenfalls erfolgreiche Startups vorzuweisen, jedoch nicht in dieser Größenordnung. Dies wirft unter anderem die Frage auf, wodurch das zu begründet ist (Schwartz & Hornych, 2010, pp. 485–495).

Um in einem ersten Schritt den Status Quo der Unterstützungslandschaft in Deutschland festzustellen und zu definieren, werden zuerst nationale for profit Inkubatoren betrachtet und Befragungen mit den identifizierten Schlüsselstakholdern durchgeführt (Lalkaka, 2001, pp. 2–7). In der folgenden Abbildung sind die for profit Inkubatoren aufgelistet, welche es zukünftig zu befragen gilt (Fig. 2).

Subsequently, successful for profit incubators from abroad are also considered and the relevant stakeholders are interviewed (Geibel & Chengappa, 2013, pp. 43–46). Here, the Y-Combinator from the USA or the incubator Sosa from Israel can be considered. The incubators mentioned are best practices and are therefore ideally suited for this research work.

	Name	City	Website
1	Atlantic Food Labs GmbH	Berlin	https://foodlabs.de/
2	Gruner + Jahr GmbH	Hamburg	https://www.greenhouse.media/
3	Gründernest GmbH	Dresden	https://gruendernest.com/
4	Freischwimmer GmbH	Ludwigshafen	https://freischwimmer.lu/
5	GERMANTECH Operations GmbH	Berlin	https://german.tech/
6	Idea Camp UG (haftungsbeschränkt)	Neumarkt	https://ideacamp.de/
7	Main Incubator GmbH	Frankfurt a. M.	https://main-incubator.com/en/home/
8	Schleicher Electronic Berlin GmbH	Berlin	http://sizzl.berlin/de/
9	Familie Gräf Holding GmbH	Köln, Düsseldorf	https://www.startplatz.de/
10	VC Ventures GmbH	Sinsheim	http://www.inkubator-karlsruhe.de/
11	WERK1.Bayern GmbH	München	https://www.werk1.com/

Fig. 2 List of for profit Incubators in Germany

5 Conclusion, Limitations and Further Research

The goal of this work is to develop a grounded understanding of the interests of the various stakeholders in the support landscape of for profit incubators. This includes determining what overlaps and conflicting goals might exist among stakeholders. For this purpose, a systematic examination of incubators, the stakeholders and their fields of activity is carried out in order to be able to comprehend the network of relationships. Based on this, an optimized target pyramid of the majority of stakeholders can emerge and also the composition of stakeholders in the support landscape of for profit incubators can be re-sketched. Furthermore, it can be derived what stakeholders contribute to the development of the startups and which stakeholders do not provide essential added value in the support landscape.

Based on this elaboration, recommended actions for stakeholder collaboration will be defined to make a startup ecosystem more successful and ultimately ensure the long-term existence of for profit incubators as well as increase their attractiveness in the long run (Syed, 2017, n.p.).

This research is about a first qualitative view of the topic area. Therefore, the expert interviews conducted will most likely yield many new insights. However, no holistic statements can be made on the basis of these interviews, as the survey volume is too small. In a possible future research project, the number of interviews could be increased or the focus could be placed on a specific country or intensified. Furthermore, comparisons with other types of incubators would be an interesting continuation of this research.

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Customer Persuasion and Branding Through Digital Communication During Covid-19

Zurabi Jankhoteli

Abstract Nowadays Covid-19 became the biggest challenge for the branding. The communications between customer and the brand were disturbed by the global pandemic. Because of massive lockdowns, the use of traditional marketing tools by companies to communicate with customers has become ineffective. It should be mentioned that, if well-known model of customer persuasion AIDA model (Attention, Interest, Desire, Action) will be shifted to the digital space, that could be beneficial to solve problems, which firms are facing due to a pandemic. **The task of this scientific research is to analyze how well Georgian brands managed customer persuasion in the period of covid-19**. This is the problem-solving research what has special methodology. The research expands two main stages. Stage one exploratory marketing research. Stage two descriptive marketing research. Stage number one includes literature review about brands and their customer persuasion. The AIDA model is considered as one of the best methods of communication, however, concepts such as cognitive and non-cognitive are introduced and separated in relation to this approach. The stage number two contains quantitative research of the customers how they are persuaded by companies and brands in Georgia. The following marketing research tools were used: (A) questionnaire for quantitative research. (B) Snowball method, which involves defining a selective set of numerically small groups. Statistical analyze of data through SPSS, also the answers to the open-ended question were processed by using MAXQDA. Expected outcomes will be information how digital channels of communication impacts on customer perception and loyalty to brands. The study can be the theoretical foundation of digital perception for Businessman's and marketers. To take in to the consideration all above-mentioned factors this study can be beneficial to identify factors influencing customers in the period of covid-19.

Keywords Branding · Covid-19 · Marketing · Management · Customer

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1 Introduction

We remember many crises in history, which in some cases were local in nature, but sometimes their area of spread grows so large that it takes on a global scale. One example of this is the financial crisis of 2008 year, which arose in the construction and banking systems, and then spread like principle of dominoes around the world and affected almost all business industries (Bartmann, 2017). The COVID-19 pandemic that started in 2019 is no exception, which covered both Georgia and the world and caused a global economic downturn.[1,2] Significant changes were also observed in the field of marketing, where the demand for traditional advertising channels decreased sharply, while the trend towards digital tools increased. According to 2020-year data, the largest in the traditional promotional instruments is television with revenues of 149 billion US dollars, however, by the influence of the pandemic, this figure is 12% lower than the 2019-year data. Print advertising sphere revenues fell by 24%, radio means 25%, and the hardest hit got cinemas with a 66% drop in advertising revenue. Digital advertising sales on Internet platforms have increased substantially. The value of ads placed on social networks and search engines in the world rose up by 8% and reached 336 billion US dollars, which is 59% of the global advertising market (Letang & Stillman, 2020).

The way of life of people and societies changes and is formed under the influence of various actions, thus also change the existing philosophies, ideologies and fundamental principles that are used in our fields of activity. Therefore, it is not surprising that the Covid-19 pandemic has had a complex impact on the marketing discipline and has required a revision of existing approaches, concepts, and practices. In a sense, marketers were more focused on the physical characteristics of the product and were unable to notice the latent needs of consumers, as the pandemic caused people to have narrow vision and panic purchases for both consumption and accumulation. Restrictions and lockdowns imposed against the backdrop of Covid-19 have increased the importance of digital channels in the process of communication between the customer and the supplier (He & Harris, 2020).

In the current force majeure situation, it will be especially effective to shift the AIDA model to digital marketing, as each stage of this approach can be implemented in the Internet space, additionally, it has a high coefficient of efficiency in traditional promotional channels.

Hypothesis A1: The use of the AIDA model in digital marketing without modifications will be as effective as it was in traditional communication channels before Covid-19.

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[1] World Health Organization. (29.06.2020). Listings of WHO's response to COVID-19. Retrieved from https://www.who.int/news/item/29-06-2020-covidtimeline.

[2] Statista. (2020). Forecasted global real Gross Domestic Product (GDP) growth due to the coronavirus (COVID-19) from 2019 to 2022. Retrieved from https://www.statista.com/statistics/1102889/covid-19-forecasted-global-real-gdp-growth/.

2 Establishing a Connection Between Brand and Target Audience

2.1 Theories of Marketing Communication and Persuasion

There are two ways to establish and persuade marketing communication with customers: through personal and mass communication. When a brand tries to deliver a message to a selected segment through an individual relationship, it uses a personal method, while in mass communications, the signal sent by the firm reaches a wide audience and can attain all sectors, regardless of whether it meets the target audience. Establishing and maintaining these kinds of connections is very important for business entities (Pelsmacker et al., 2013).

The proposed theories of consumer persuasion are highly complex and encompass many aspects, including the transmission of thoughts and generating behaviors that in turn, draw on our visions of the world. The hypodermic theory was one of the most widely used approaches in terms of persuading the target audience, which views a person as an atom that responds only to the orders and offers of mass communication channels. According to the above-mentioned, if the consigned signal reaches the addressee, it becomes much easier to convince them. The theory of limited effect and the theory of agenda setting—according to these approaches, the media chooses information about what it should provide to the public and what they should focus on, although there is a notion that individuals can accept or reject provided content from their own consciousness. Consequently, when studying consumer persuasion, it is important to understand in detail the human mind, which is the basis of our behavior. Social and cultural determinants should be considered when analyzing concepts such as perception, attention, decision, and motivation. This theory is most effective if the person already agrees with the proposed vision or accepts existing information because it matches his or her interests. According to the theory of cultivation, the media not only chooses the content that it delivers to the audience but also determines how they should think about this signal. Conforming to the above approach, media can formulate views, decisions, attitudes, and behaviors (Greco, 2018a). The theories discussed are important in the process of persuading consumers, especially which method or set of methods a brand will use when planning its marketing strategies.

2.2 Digital Space and Covid-19

The activity of people on Internet platforms has significantly increased during the period of Covid-19. Consumers are increasingly using social networks, and digital spaces have become more important to them (Mouratidis & Papagiannakis, 2021). The usage of social networks by the firm as a communication channel increases the effectiveness of marketing activities, brand image and also stimulates sales (Felix et al., 2017).

Based on the research of Nugzar Todua and Charita Jashi, it is clear that in the period before the pandemic, the interest of Georgian consumers towards social media in the country was characterized by a growing trend. It is also revealed that well-designed marketing strategies on internet platforms help gain the loyalty of potential customers. Additionally, it has been found that using social media is one of the best ways to promote a company and convince the target audience (Todua & Jashi, 2015).

As the number of Internet users enlarges, so does the scale of the digital world and the importance of its tools in marketing strategies. More and more consumers are using this source to get information about a product before purchasing, as well as to share experiences about a particular brand's quality and other characteristics. Thus, the introduction of various concepts of online marketing by companies will allow them to attract the attention of customers, thereby improving their market position (Slijepčević et al., 2020). The availing of internet space helps to deepen the relationship between the client and the firm and improves communication (Kotler et al., 2005).

3 Consumer Communication and the AIDA Model

3.1 Emotions; Cognitive and Non-cognitive Aspects in Marketing

Francesco Greco notes in his paper that human experience and emotions play a key role in the success of marketing strategies. It should also be notable that he does not consider purchasing as the completion of action but as a component, that is part of an overall assessment of the experience of a particular brand or product. The emotion that arises from experience can be transformed into a marker, which can establish a positive connection between the person and the brand. New technologies combined with neuromarketing have allowed us to measure brain activity on various stimuli and highlight aspects that will help a brand or product linger in the consumer's memory for a long time and, if necessary, be instantly recalled through marketing. In an attempt to study emotions and marketing comprehensively, their boundaries have expanded to include disciplines such as Neuroscience, Cognitive psychology, Sociology, and Philosophy. Concurrently, it revealed that a person makes a purchasing decision not only depending on the cognitive aspects, but also subconscious actively works in the process, how it perceives reality and external stimuli. When planning marketing activities, it is also important to note that individuals decode advertising messages subjectively, so a marketing campaign should be designed in such a way that the message sent from the brand is properly perceived through the consumer, which is facilitated by the ease of understanding the content, and its meaning (Greco, 2018b).

The amount of money spent on digital advertising campaigns is growing every year (Statista, 2021), so potential customers see more promotional content. Unsurprisingly, it becomes relevant to develop such a marketing model that will be more

effective, especially during the Covid-19 pandemic, when people spend much more time on the Internet (Wallinheimo & Evans, 2021). Developing a marketing strategy and model selection is individual and depends on the brand and product characteristics. However, given the above, one of the most common and effective approaches to customer communication is the AIDA model (Mathieu & Löfgren, 2018), which, once shifting to the digital sphere, will help business entities overcome the challenges posed by the pandemic.

3.2 The AIDA Model and Neuroscience Approaches

Against the backdrop of a pandemic situation, it is important in the discipline of marketing to find and develop methods that will directly respond to these acute challenges. According to the provisions outlined in the study, one of the best tools for marketing communications is the AIDA model, the abbreviation of which reflects the four stages: Attention, Interest, Desire, and Action. By implementing the existing sequence, the firm can establish an effective connection with the target audience. Its purpose is to attract the attention of potential customers, arouse their interest, and ultimately lead to buying action (Li & Yu, 2013).

Attention—The first stage of the AIDA model, where potential customers' attention should be attracted by the company's marketing campaign at the expense of providing information through the mass media. It can be done by creating content that will be meaningful and demonstrate the usefulness of the product. In addition, the signal sent by the brand should be convincing, easily perceived, and better than the message transmitted by a competitor.

Interest—After gaining attention, a firm should generate interest among its target audience by disseminating information about the features and benefits of the product or service. This signal may be transmitted through various media outlets. At this stage, a potential customer is ready to fully devote time to the detailed consideration of the message, and a way to solve the problem built into it by the brand and/or to give hope will further deepen the interest.

Desire—At the current stage, consumers appear motivated to purchase products or services, although they still doubt that the above can meet their expectations. In this context, the goal of marketing is to cognize the entire audience and ensure that the target segment sense is formed in such a way that it should lead to demand, as well as reduce doubts.

Action—The last step is to give potential customers a push to make a purchase. In the purchase ongoing process, marketing can have an impact on the audience one more time by providing relevant information about the value of the product or service, and its benefits, so that the target segment responds accordingly. Through sending the right marketing signal, the appropriate action is achievable among consumers (Hadiyati, 2016).

The views presented by Francesco Greco about the human brain, emotions, and experiences discussed in terms of marketing have been thoroughly researched by

Saba Montazeribarforoushi, Abolfazl Keshavarzsaleh and Thomas Zoëga Ramsøy in a collaborated paper, where an in-depth study of the AIDA model is presented, and this aforementioned communication channel is analyzed with a multidisciplinary approach to consumer neuroscience, which also unifies psychology, economics, and neuroscience, thus likewise significantly expanding the boundaries of marketing. Taking into account existing proofs, heterogeneity of the AIDA model was highlighted, and important aspects were identified, which in turn implies a two-pronged division of this approach: cognitive and non-cognitive. The researchers proposed a new structure within the following form: Au, Iu, Du, Au and Ac, Ic, Dc, Ac, Where "U" means "non-cognitive" and "C"—"cognitive". Fundamental neuroscientific studies have also divulged that, in many cases, subconscious decisions precede conscious ones; when integrating the AIDA model into digital marketing, consideration of these aspects will increase the quality of communication and the effectiveness of customer persuasion. At the same time, it was found that there is a close relationship between Attention and Interest, and it should be considered not in the sequence "A → I", as in this model, but with a two-way connection, which will take the next scheme "A ↔ I". (Montazeribarforoushi et al., 2017).

4 Research Findings and the 5-Stage Model

4.1 Research Goals and Objectives

The aim of the study is to determine whether it is possible to transfer the AIDA model to digital marketing during the Covid-19 period.

- Evaluation of whether all four components of this model are valid in the Internet space.
- Identification of aspects that ensure the activation of the AIDA model for consumers on digital platforms.

4.2 Research Methodology

To achieve this aim, it is necessary to perform objectives that are formulated relevant to the main research issue. Thus, it was determined that research should be conducted by a quantitative method since it is characterized as one of the best ways to study current processes and events in society. The questionnaire was compiled in both a closed and one open-ended question format, and in addition, a Likert scale was used for evaluation. The survey was conducted in Georgia on the Internet, through Google Docs, in the format of a structured questionnaire, which was sent to the respondents in the messenger on Facebook and Instagram social platforms in 2021.

A mass survey was held during the research process, and the snowball method was also used to establish the selective combination with numerically small groups. The probable duration of filling out the questionnaire is 10–15 min. The questionnaire consists of 1 block with 11 closed and 1 Open-ended question, as well as includes a Likert scale. The number of respondents is 183, who answered positively to the A1.1 filter question. At each stage of the research, confidentiality and principles of research ethics were observed. Data were processed through the statistical program SPSS (V26), and the answers to the open-ended question were analyzed using MAXQDA (Tsuladze, 2008).

4.3 Research Results and Findings

This subsection represents the results of a survey of respondents, which show that the AIDA model can be used in digital marketing without modifications and that each phase is active during the Covid-19 period. The above is well seen in question A1.3, where 30.6% of respondents say their attention span is caused by a combination of an unusual image and a title, and the shift toward interest, according to question B1.2, arises from promotional content with a fascinating design and structure embedded in the information. 66.7% of respondents say that customer reviews help them to create consumer desire. Moreover, the target audience is transferred to the purchase process by trying or testing the product, which helps to ensure about existing expectations (interviewees 38.8%).

Based on the results of the present study, we have developed a 5-stage model that will help organizations, business entities to activate the AIDA model for consumers, ensure consistent implementation of the above and improve its coefficient efficiency, which is very important in order to convince the target audience during the current pandemic (Fig. 1).

The description of the 5-stage model

Stage one—In order to attract the attention of potential customers, it is necessary to create an unusual, emotional, image and title combination that directly affects this process (30.6% of respondents). In addition, it is possible to use only an unusual image, which, according to 8.2% of interviewees, contributes to the above action formation.

Stage two—The survey revealed that 35.5% of respondents use search engines to find the desired product or service and 23.5% also bring to bear search engine platforms as well as social networks for this. Thus, we can say that through some knowledge generated from the attention created on the first level, it is possible to arouse interest by search engine optimization, out of which firms will be able to easily move potential customers to the third stage of AIDA model.

In the process of searching via search engines, consumers should be able to find and explore the features of a product or service and their benefits on the Internet; it

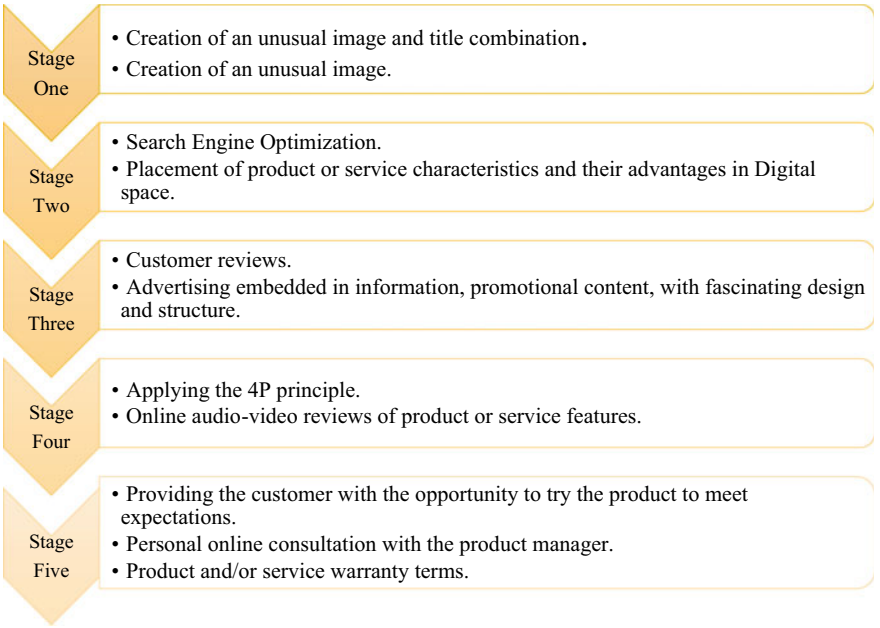

Fig. 1 Five stage model about how to use better AIDA

needs to be easy to discover. An example of this is viewing the interior and exterior of a vehicle with a 360-degree video tour (66.7% of answerers).

Stage three—Here, customer reviews are already important, which is highly valued by 42.1% of interviewees, and the information provided to the audience ought to be promotional content with an attractive design and structure (36.1% of responders). It fosters deepening interest and prepares the landscape for the creation of consumer desire.

Stage four—The application of the 4P principle at this stage will significantly increase efficiency if it is relevant to the target audience, which was mentioned by 60.7% of survey participants. Consequently, a logical connection must be established between price, segment, and quality, which will evoke consumers' desire. Furthermore, this approach will be substantially enhanced by online audio–video reviews of product or service characteristics (18.6% of answerers).

Stage five—A more effective way to move the consumer from desire to the purchasing process is to provide them with the opportunity to try the product to meet expectations, for example, online attending and participation in lectures when choosing a university (38.8% of respondents). Personal online consultations with the product manager are also quite important, which according to 30.6% of the interviewees, pushes them towards the order action. It should also be taken into account that the warranty terms of the product or service convince consumers about the correctness of their decision at the time of purchase, which allows them to dispel any doubts or hesitations and boldly carry out the acquisition process (53% of respondents).

5 Conclusion

Based on the present study, it was found that the AIDA model can be shifted into digital marketing during the Covid-19 period without any changes and is characterized by a high-efficiency coefficient. Consequently, the hypothesis put forward by the research has been confirmed. The above-mentioned approach is one of the most effective instrument for establishing quality communication with the target audience to persuade them; however, in order for it to be activated on the digital platform, it is important to use the 5-Stage model offered by us, which ensures not only its trigger but also sequential performance. By implementing the methods presented in the paper, brands will be able to establish a cogent connection with potential customers, and at the same time, convince them.

Our proposed approach also solves the problem identified in question Q1.2 of this study that is mainly related to the discrepancy between the information provided by the brand about the product and its real quality. Thus, the given steps provide the customer with faithful, accurate data and characteristics, which in turn will create a relevant impression about the above-mentioned.

Along with the developed 5-stage model, it will also be interesting to involve the unconscious at certain stages, which may lead to an even greater increase in the effectiveness of this methodology, although that is already a matter for further fundamental research.

Appendix

A1.1 Do you buy this and that product or service on digital platforms?

- Yes
- No

A1.2 How often do you purchase a product or service through digital platforms?

- Several times a week
- Once a week
- Several times a month
- Once a month
- Once in a year

A1.3 When shopping online, what can get your attention on something? (Whatever it's a product or something else).

- An unusual narrative
- An unusual title
- An unusual picture
- An unusual image and title combination
- No, I am looking for a product purposefully

A1.4 When purchasing the product or service you need only purposefully, you do the following:

- You start searching for the desired functional characteristics of a product or service on search engines, such as Google.
- You start searching for the desired functional characteristics of a product or service on social networks, such as Facebook.
- You start searching for the desired functional features of the product or service on the search engines and social web pages.
- You communicate directly with the suppliers of your product or service through personal communication channels, such as email and telephone.
- Browse statements on a functional issue of your interest, for example, viewing vehicles on the relevant web page.

B1.1 Which factor drives, draws, attention to your consumer behavior on internet platforms?

- Title
- Author
- Institution and its credibility
- Customer reviews
- Special offers

B1.2 Please mark the sentences that reflect your transition from attention to deeper interest:

- Persuasive communication
- An institution that disseminates information
- Thought leaders (e.g. influencers)
- Advertising embedded in information, promotional content, with fascinating design and structure

B1.3 What factors contribute to the creation of your consumer desire?

- That I have the opportunity to access information online.
- That I have the opportunity to meet people online who offer a product or service.
- That I have the opportunity to talk with product suppliers online.
- That I have the opportunity to study the features of a product or service and their advantages online.

B1.4 What makes you want to buy a product or service?

- The desire was triggered by 4P (Product, Price, Place, Promotion), that matched my requirements.
- The desire was triggered by searching for and obtaining additional information.
- The desire was triggered by an online audio–video review of product or service characteristics.
- The desire was triggered by an online interview with a product developer, supplier, or someone who knows its features well.

B1.5 What makes you switch from a desire to purchasing a product?

- Additional personal online consultations with the product manager
- Audio and video consultations
- Text consultations
- Try the product to meet expectations

B1.6 Does anything have a bearing on strengthening your decision at the time of purchasing the product?

- No, nothing affects.
- Online audio and video consultation persuades me of the correctness of the decision.
- Textual consultation persuades me of the correctness of the decision.
- The warranty terms of the product or service persuades me of the correctness of the decision.

Q1.1 How satisfied are you with the products and services purchased online?

- Very satisfied
- Satisfied
- Neutral
- Unsatisfied
- Very dissatisfied

Q1.2 Please, explain why you were not satisfied with the product or service purchased online?

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E-Commerce and Digital Entrepreneurship

Social Commerce—Origin and Meaning—

Richard C. Geibel and Robin Kracht

1 Origin and Development

The world of electronic commerce (e-commerce) has grown considerably in importance and developed at great speed in recent years. This rapid development relates not only to the constantly growing sales volume of e-commerce, which has been further accelerated in particular by the Corona pandemic, but also to the different facets and manifestations in which e-commerce presents itself today.

The field of "social commerce" (s-commerce) represents a particularly relevant area of e-commerce, as it builds on the now tried and tested functionality of e-commerce while also combining these powerful approaches with the enormous dynamism of social media management. This significant combination offers the respective market participants a multitude of new opportunities in the areas of marketing and sales, as well as major challenges in the conceptual and IT realization of the approach pursued in the implementation of the s-commerce strategy. Both areas are considered in detail and critically examined in this paper.

1.1 Traditional Value Chain

The classical subdivision of the processes in an enterprise into the three large ranges "procurement—production—paragraph" was refined by Michal E. Porter in the 80's

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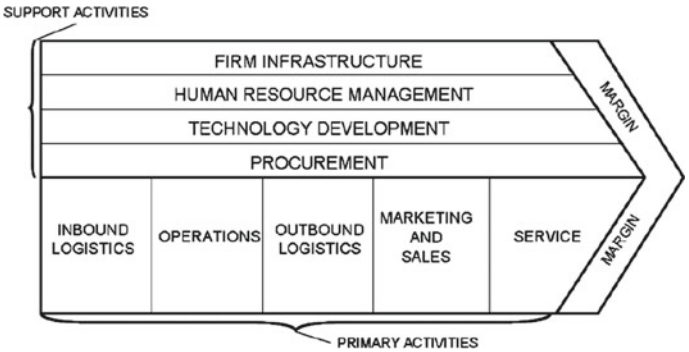

Fig. 1 Traditional value chain. (*Source* Wirtschaftslexikon (2021), n. p.)

by the more detailed view of the creation-of-value chain. This is explained in more detail in the first chapter of the research work.

Michael Porter has defined in this traditional value chain, which interrelated business activities of the operational goods production process are listed (see Fig. 1 below). Thereby the margin of an enterprise depends equally on the different primary activities as well as the support activities. The model is represented as follows:

1.2 Sub-Processes

The value chain is created with the aim of increasing the efficiency of processes and the competitiveness in companies. For this purpose, all activities of a company are broken down in detail into their individual components. The form of presentation illustrated above facilitates overall analyses of companies and comparisons of the various individual areas. The value chain of companies is fundamentally described from the complete manufacturing process to the distribution of the products. This basic model was developed by the US economist Michael Porter.

The value chain model graphically represents these corporate activities. It is divided into primary and supporting activities. Primary activities include all activities that are directly related to the creation of the product or service.

The first phase of primary activities is described by inbound logistics, before the production of goods or services begins. After production, outbound logistics starts, where goods are placed so that they can be quickly shipped from the warehouse—accordingly, the storage and delivery of the finished product send to customers. The next step in the value chain is marketing & sales—in the form of various online and offline activities and the eventual sale of goods or services. The last step in the chain is service or customer support for customers. Here, companies can be available to customers by phone, email, or social media accounts, who are asking questions about products, filing complaints, and requesting product returns.

The supporting activities form the condition for the execution of the primary activities. The supporting activities Porter ranks are: the enterprise infrastructure, the technology development, and the procurement, which concerns less product procurement, but rather around a supply of machines and equipment. Also included is human resource management, the management of the workforce, which is essential. This includes training, hiring, or firing of employees. Technology development activities include the further development of products and production processes. On the right side of the model is the margin. This represents the added value created during the production of the good or service.

All competition-relevant information and interrelationships are thus represented in the model, creating an optimal basis for further analysis.

Thus, the question "What insights does the value chain provide into the performance of a company?" can be answered. This is because the basic assumption is that increasing competitiveness is only possible by optimizing all of a company's activities. The value chain therefore makes it possible to answer questions about specific sub-areas (support and primary activities) or questions about the company as a whole.

Furthermore, the model can be used to determine which activities are the company's core competencies. For example, the core competencies can be in marketing and sales through clever presentation in advertising and social media channels.

The value chain is primarily used because it provides an in-depth matching business analysis. Moreover, it combines pure analysis with strategy development. In contrast, however, the value chain methodology is relatively complex and costly. In addition, the interpretation of the results is initially only a first consideration and therefore requires further thought.

2 Classification of Electronic Business

Increasing digitization and the associated possibilities of information transmission led to further progress in the consideration of processes in companies.

The general growth in technological change and—in particular—the growing importance of information and communications technology, as well as the expansion and networking of electronic or digital data paths, were necessary prerequisites for a new dimension of economic interaction—electronic commerce on electronic data paths.

Electronic business—often also referred to as e-business—consists of various components that need to be explained, just like the network economy. For a uniform understanding of the subject area presented here, the following classification of the central concepts is therefore made (Fig. 2).

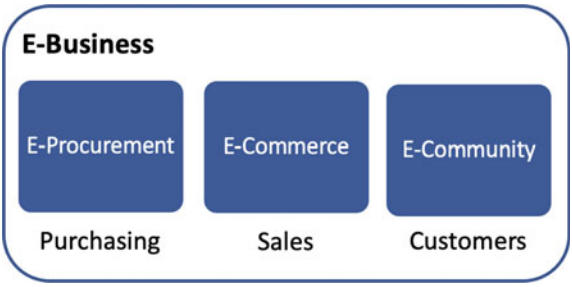

Fig. 2 Classification of the central elements of electronic business. 2021 (*Source* Own representation. There are different views on the classification. See Kollmann (2021), o. p.)

2.1 E-Procurement

Electronic procurement (e-procurement) enables the electronic purchase of products and services by a company via digital networks. This involves the integration of innovative information and communication technologies to support and handle operational and strategic tasks in the procurement area.[1]

2.2 E-Commerce

E-commerce enables the electronic sale, i.e. the conclusion of digital sales contracts, of products or services by a company via digitally connected networks.[2]

2.3 E-Community

An electronic community (e-community) enables electronic contact between people or institutions via digital networks. Innovative information and communication technologies are thus integrated both to support the exchange of data and knowledge and to prepare transaction-relevant decisions.

Content marketing in particular plays a central role here, influencing the attitude of the addressees regarding the company's goals by means of strategic measures relating to the creation and dissemination of relevant content.[3]

[1] Kollmann (2021), n. p.

[2] Große-Holtforth et al. (2020), p. 5.

[3] Römmelt (2021), p. 19.

2.4 Digital Value Chain

After Porter describes the traditional value chain, there are also approaches for digitally shaped value chains based on the electronic business approach. For a systematic analysis of a future-oriented company that wants to be successful in the area of e-commerce, it is essential to examine the individual elements of the value chain. The following model describes the digital value chain (Fig. 3).

Value chain:

The illustration of the digital value chain presented above shows the different, classic elements of e-commerce companies. These can be divided into three main areas.

i. **Primary value added**

This consists of seven stages. New values are generated in each of the stages listed. Therefore, each of the stages has a share in the success of the company. After purchasing products and/or services, the company adds value, e.g. by refinement or by compilation (assortment), and thus generates the value added.

ii. **Digital carrier medium**

Technology is the central component in e-commerce companies and a basic prerequisite for value creation. Strategically wrong decisions can limit the entrepreneurial flexibility and thus cause great damage. In addition to various technical tools, for modern online store operators are particularly an inventory management system, the online store and marketplaces to use.

iii. **Secondary value added**

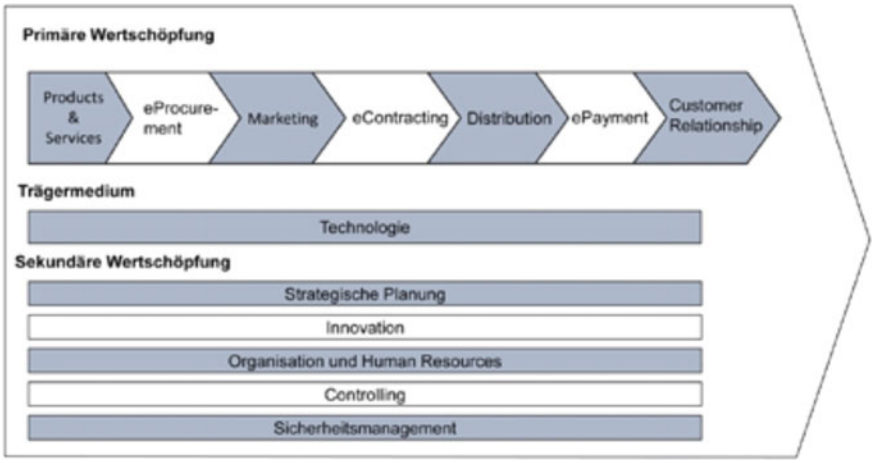

Fig. 3 Digital value chain. 2021 (*Source* Nutrion (2021), o. p.)

If the secondary value chain is considered, values are created here that do not directly generate sales but are nevertheless of central importance for the company. This is because fundamental structures and strategies for growth and sales are generated here. Management and planning of the company, business development, company organization, security management, finance and controlling are indispensable for a company with a digital focus or sales channel. Inadequate know-how and erroneous decisions ultimately lead to a loss of profitability.[4]

3 Social Commerce

Recently, the field of e-commerce has grown significantly in scope and importance.[5] Driven in particular by the underlying conditions of the Corona pandemic, the number of digitally generated sales increased, as did the various forms of e-commerce.

A special form of e-commerce is "social commerce" (s-commerce) is a new answer to the question of how products are found, seen, and selected by the consumer and how they subsequently reach the end user. The key differentiator is thus the underlying sales channel. The concentration of distribution and sales on social media channels represents an impressive commercial evolution. Social commerce is thus neither a new form of advertising nor a single step within the customer journey.[6]

With s-commerce, the user experience more closely mimics the physical shopping world compared to previous e-commerce. The interactions between people, personal recommendations, and direct feedback simulate the shopping experience of the real world and stimulate the sales process.[7]

3.1 Definition of Social Commerce

Until now there is no uniform definition that has yet been established for the new, promising field of social commerce. Only a few articles and papers on the subject of social commerce can be found in the literature to date, and these also have different perspectives on the new field and therefore lead to different approaches. The existing definitions all cover only parts of social commerce and do not cover its full scope. A generally valid definition of social commerce is therefore imperative and is intensively demanded by the market.

In order to create a stable basis for further explanations, the authors have developed a holistic social commerce model that combines all the relevant areas and characteristics. This makes it possible to clearly describe the research area under investigation

[4] Nutrion (2021), n. p.

[5] On the importance of e-commerce see Große Holtforth et al. (2020).

[6] Roschmann (2021), p. 31.

[7] Richter (2021), p. 20 f.

and to clearly delineate its content. To this end, three successive and complementary stages in the definition of social commerce and a corresponding graphical representation were developed: social commerce "in the narrower sense (i.n.S.)," "social commerce in the broader sense (i.b.S.)," and "social commerce in the comprehensive sense (i.c.S.)".

Three-layer definition of Social Commerce:

1. Social commerce in a narrower sense (i.n.S.): Social commerce is a full funnel communication, marketing, and sales strategy for products and services fueled by personalization, inspiration, and direct interaction, using social media platforms.
2. Social commerce in a broader sense (i.b.S.): Social commerce is a full funnel communication, marketing, and sales strategy for products and services fueled by personalization, inspiration, and direct interaction, using social media platforms, as well as the creation or usage of an e-community and the implementation of technical infrastructure.
3. Social commerce in a comprehensive sense (i.c.S.): Social commerce is a full funnel communication, marketing, and sales strategy for products and services fueled by personalization, inspiration, and direct interaction, using social media platforms as well as the creation or usage of an e-community, and the implementation of technical infrastructure, enabling, and empowering integrated digital commerce and omni-channel approaches.

3.2 Graphical Representation of Social Commerce

In the authors' understanding, the three interconnected stages in the field of social commerce must be viewed holistically in order to grasp and adequately describe the growing functionality and complexity of this rapidly developing area. In the comprehensive presentation of the third stage of the social commerce model, it takes the visual form of a "Mickey Mouse" by including the two important areas of "digital commerce" and "omni-channel sales" with its many connections and interfaces to social commerce (Fig. 4).

According to the definition in the narrower sense, i.e., the core of the illustration presented earlier, is "Social commerce is a full funnel communication, marketing and sales strategy for products and services fueled by personalization, inspiration, and direct interaction, using social media platforms."

Here, both the customer approach (sales) as part of the customer journey and the entire sales process (sales), including credit checks and payment processing on or via the relevant social platform itself (on-platform or via social plug-in), are the focus of consideration. In this context, a large number of different products and services are offered by companies (frequently B2C, less frequently B2B) or individuals (frequently C2C, less frequently C2B) who use established social media platforms such as Facebook, Instagram, Twitter, LinkedIn, YouTube, TikTok, Pinterest, or Snapchat (as of October 2021). In the future, additional platforms will be added regularly and incrementally supplement the offering.

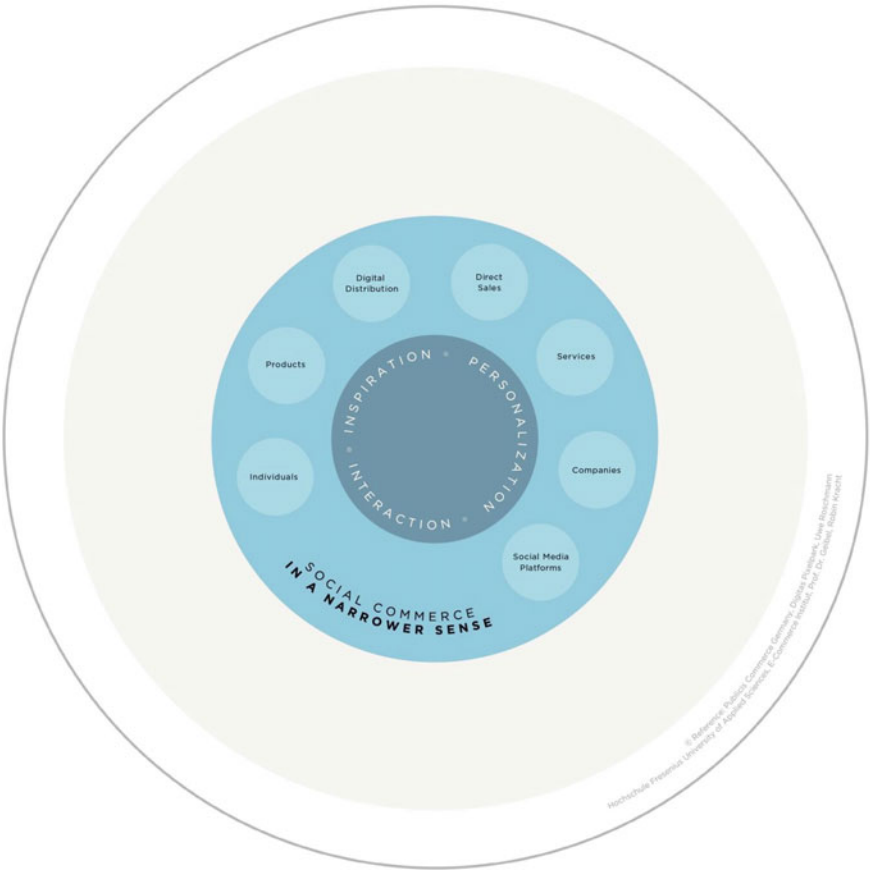

Fig. 4 Social Commerce Model in a narrower sense (*Source* Own representation)

The diverse social media platforms have different characteristics, so that the basic requirements must be defined both in technical terms and in terms of the behavior of social groups—the users of these platforms. This establishes the second stage of the social commerce definition, i.e., that in the broader sense:

> Social commerce is a full funnel communication, marketing and sales strategy for products and services fueled by personalization, inspiration, and direct interaction, using social media platforms as well as the creation or usage of an e-community and the implementation of technical infrastructure.

The technical infrastructure describes any form of interfaces with social media platforms and enables a smooth sales process. The implementation of "Application Programming Interface" (API) and social commerce plug-ins is a prerequisite so that different systems can be connected with each other (e.g., the website incl. merchandise management system with the company's internal social media profile) and technical forwarding functions smoothly. These integrations are also described

by the discipline of "headless commerce", i.e. the technical independence of store backend and user front end, connected by APIs and thus flexible and infinitely scalable, including across all social platforms. Social commerce plug-ins can also be integrated directly into familiar web store solutions so that customers can, for example, "like" or "unlike" products or follow other users. This is also accompanied by e-payment methods, i.e. online payment for products and services. Once Facebook has introduced "check-out" on its platforms in Germany and Europe, at the latest, this possibility of "seamless transaction" will have a massive impact on the shopping behavior of customers and also on the sales behavior of companies—on the social platforms and via corresponding plug-ins and interfaces. Single sign-on will also make things more convenient for the user. This means that they only have to log in once and can use all the services and platforms of a company or seller without having to log in again at every step. The access data is stored in the web client.

When considering the social group or e-community (see definition in Sect. 2.3), on the one hand a user or user group must be intensively supported and maintained before, during and after the purchase. On the other hand, these users should ideally represent free brand ambassadors for the company through high customer satisfaction and make recommendations directly to their circle of acquaintances.

The definition area "social group" is the clearest demarcation of social commerce versus other e-commerce. It is not for nothing that the terms "discovery commerce" and "community commerce" are often used in connection with social commerce as fundamental subareas or "conversational commerce" as the transaction and customer care channel that is set up, as well as the associated subdisciplines and concrete social commerce mechanisms such as "live video shopping". Beyond the technical interfaces, see also "Technical Infrastructure" in Fig. 5, social commerce primarily uses the strength of "social", i.e. of social networks and their mechanics. Social commerce thus creates a fundamentally new way of shopping and discovery. Shopping becomes "always on" through social commerce. Instead of customers going in search of products by themselves at a certain (need) point in time, conversely, products and brands discover their customers via social commerce—at any time. Personalization, inspiration, and interaction are the decisive keys here. The unique selling points of social commerce are discoverability and the social recommendation character that automatically goes along with "E-Community", see Fig. 5. Social commerce enables companies to address (potential) customers in a personalized manner according to their needs, wishes, and interests, and to provide inspiration even if a (potential) customer is not actively looking for something.

For example, through one's own peer group on a social network, a user's circle of friends, as well as people, brands, or companies that a user follows, or also through creators/influencers, a purchase process can be started at any time through an individually initiated discovery and also completed directly with the same thumb movement or click. For larger and technically advanced companies, through the corresponding technical direct connection (e.g., conversion APIs or, as soon as available in Germany and Europe, e.g., Facebook Check-out), see also "Technical Infrastructure" in Fig. 5. For smaller companies, for example, through corresponding direct onward linking to their own stores or to live video shopping events. However, it is not

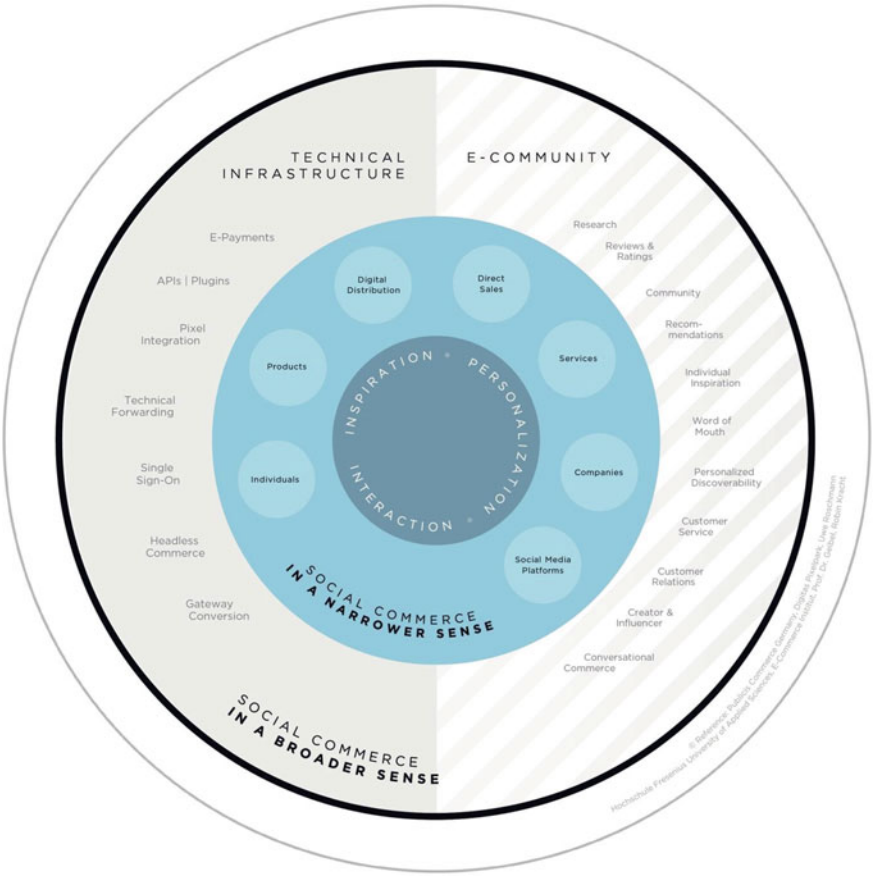

Fig. 5 Social Commerce Model in a broader sense (*Source* Own representation)

only likes, followers, and creators/influencers that make up the "discoverability" of social commerce; the algorithms, machine learning and AI of social networks can also provide users with ever new suggestions that are relevant to the individual user and let them discover new brands, products, and services. This paradigm shift "products and brands find people" instead of "people find products (that they are looking for)", the individual possibility of discovery and the possibility for advertising companies to use this "discoverability" in a scalable way and to use it specifically for their own communication, is a core definition point of social commerce.

In addition, positive ratings across all channels (e.g. Google) are important for companies to exude more trust and reliability. This applies to all companies selling products or services, B2C as well as B2B, even if no online sales are offered, but exclusively "brick & mortar" sales space. Reviews, ratings, and recommendations from a social community mean that everyone depends on social commerce to send the right messages and signals to the target groups and to be able to carry them out

further—therefore, we talk about community commerce here in particular. Social commerce is therefore also relevant for companies that do not sell online at all. When carrying out social commerce sales processes, it is possible either to draw on an existing community (e.g., advertising by creators/influencers, bundled measures using micro-influencers, e.g., fans of the brand in question) or to build up a new community. However, it should be noted here that building a new community involves a lot of time and effort. For this reason, this is a common approach, especially for longer-term plans (e.g., continuous sales of products via the company's own social media channel).

Social commerce offers direct access for companies to (potential) customers, thus the opportunity for a real dialog for direct contact. Via the social platforms themselves or via messenger programs such as WhatsApp, companies and brands can get very close to their customers, talk to them individually and engage with them personally. This gives CRM and dialog marketing a whole new relevance, both organizationally in customer care via "conversational commerce" and technically using chatbots and AI to increase the efficiency of this very customer care. This not only enables personalized addressing and, if necessary, offers, but also the research possibility for companies to obtain opinions and suggestions for improvement directly from the most decisive of all target groups, namely the (potential) customers, and on this basis to improve the offer, their brand, their products, or services accordingly and to adapt them more precisely to the target group needs. Algorithms and machine learning are therefore indispensable cornerstones of social commerce.

In addition, it must be possible to easily search for the products or services. This should also function across platforms, i.e., online via various social media platforms and the World Wide Web, but also enable a connection to the offline community (where are the stores and where can the product be purchased or tested?). If this transition succeeds, the third stage of the presented social commerce definition is reached, social commerce in the comprehensive sense.

When differentiating between e-commerce, omni-channel and social commerce, there are not only some common features, such as the same range of functions in terms of content, but also significant distinguishing features. These become particularly clear with regard to the selected distribution channels (Fig. 6).

Omni-channel is the most distinct from the other two, as the purchase contract can also be concluded in a stationary store and the goods can also be handed over directly. Thus, in this case, the approach or the offer of social commerce is to create the initialization of the purchase—or a further customer touchpoint within the customer journey—which then led to the conclusion of the purchase in the stationary area.

The situation is different with e-commerce, which can be divided into the area of "social commerce" on the one hand and the area of "digital commerce" on the other. In digital commerce, products and services are sold via the World Wide Web using websites or online stores, while social commerce uses social media platforms as sales channels. Social commerce in the comprehensive sense is therefore understood to mean "a full funnel communication, marketing and sales strategy for products and services fueled by personalization, inspiration, and direct interaction, using social

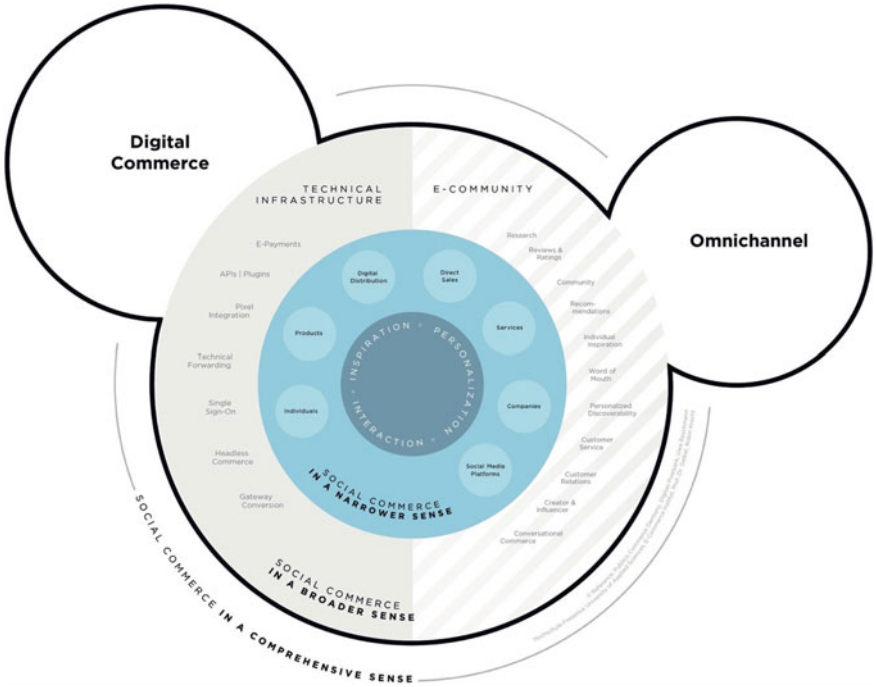

Fig. 6 Social Commerce Model in a comprehensive sense (*Source* Own representation)

media platforms as well as the creation or usage of an e-community and the implementation of technical infrastructure, enabling and empowering integrated digital commerce and omni-channel approaches."

4 Characteristics of Social Commerce

For a better understanding of this novel and important research area of social commerce, the special opportunities associated with it and the special challenges of social commerce are highlighted below.

4.1 Opportunities of Social Commerce

The use of social commerce offers a wide range of opportunities and possibilities that offer considerable potential, especially with a view to Generation X, Y and Z.

The characteristics listed below are necessary prerequisites for a successful strategy and implementation of social commerce (Table 1).

Table 1 Opportunities of social commerce (*Source* Own representation)

Trust (in product, company and especially in brand ambassadors)
Recommendation marketing—influencer
Direct linking to product purchase
High inspirational power to buy products
Word of mouth
Ease of use
Immediate conversion
Uncomplicated buying process

4.2 Challenges of Social Commerce

The field of social commerce cannot be viewed in an exclusively positive light. This is because there are also challenges in this subject area which make implementation more difficult and require special expertise.

In addition, a look at data sovereignty is also indispensable, because the social commerce approach allows the powerful social media platforms to collect further customer data and further expand digital customer profiles. The behavior of online users, especially with regard to purchasing activities and preferences, can thus be tracked even better (Table 2).

5 Application Examples

In the meantime, impressive examples of the application of s-commerce can be found sporadically in the literature, but especially in operational practice. These include:

Table 2 Challenges of social commerce. (*Source* Own representation)

Building trust
Contacts to conduct affiliate marketing (especially with brand ambassadors)
Intensive use
Process knowledge/high level of know-how to carry out affiliate marketing
Data sovereignty—who owns the data, what data is stored, what happens with this data (resale?)
To what extent are GAFAs strengthened by this trend? What else can they do with the increasing power?
Will there be fewer and fewer online players because GAFA is buying up technology and promising companies directly? (See Facebook with WhatsApp and Instagram)
What is the danger for customers? Is the customer really the focus or are they only treated "well" until the purchase is completed?

5.1 Mr. Beast Burger

- Launched with a viral marketing campaign (300 eateries opened in one day).
- 22-year-old YouTuber is the face of restaurants—he has more than 70 million subscribers on YouTube with different Accounts.
- Company's app reaches #1 on the app store charts, generating over $15 million in sales within 48 h.
- Very well-known partners (Robert Earl—Hard Rock Cafe and Planet Hollywood) help with infrastructure and organization.
- Immense reach (celebrities share it).
- Low fixed costs (virtual restaurants, just for take-away and delivery).
- Connection with an app—there can be pre-ordered.

5.2 Cluse

- Watch manufacturer
- Very successful on Instagram
- Many collaborations with well-known influencers (also in Germany)
- User-generated content is an overriding goal (purpose is distribution).

5.3 Under Armour

- Sports apparel
- Work with influencers and also run a lot of ads
- It is important to UA that the ads do not look like advertising. Therefore, the campaigns often feature people in action—so the end customer thinks at first glance that he is looking at a normal photo and video. This is how he should then be made aware of the products.

6 Outlook

The field of social commerce has recently become increasingly important. Reasons for this include:

- Increasing internet & social media usage
- Mobile First Trend
- Generation Z
- Coronavirus pandemic
- Increased share of home office
- Functional expansion of social media platform

- Significant IT technical advancement in electronic purchasing processes.
- Virtual reality and augmented reality
- Technological progress in social media platforms (Pinterest visual search: the end customer takes a photo of a product and then the platform displays exactly that product and similar ones)
- Network expansion towards 5G
- Urbanization and optimization of the last mile (new last mile concepts—e.g. delivery by drone).

These aspects will be examined and presented in more detail in the next version of the Working Paper on Social Commerce. In addition, the trends will be prioritized and the effect of each trend on social commerce will be described.

6.1 Strategic Checklist

For the successful implementation and realization of social commerce in the German market, companies and individuals must fulfill various strategic criteria. These must be continuously reviewed and measured (e.g., using Facebook Business Manager) and optimized and expanded in order to remain competitive. In the following, strategic characteristics are listed that are indispensable for successful implementation in one's own business areas. It is important to ensure that the criteria listed are in line with strategic corporate goals.

	Mr. Beast Burger	Cluse	Under armour
Brand logo as profile picture			
Meaningful bio with icons & coupon code if applicable			
Designate head of social commerce to shorten coordination processes			
Don't use standard fonts—stand out from the crowd			
Share different content (images, videos, live videos, stories)			
Generate reach (with more than 10,000 followers, the swipe up feature is possible			
Content should not just be about the company's product or service			
The content must be of high quality (high resolution of the shared content)			
Use uniform filters for the images or use different filters that have the same style so that the account is representative			
Implement story highlights in the profile so followers can access more information directly			

(continued)

(continued)

	Mr. Beast Burger	Cluse	Under armour
Perform actions that generate UGC (user-generated content)			
Establish own hashtags			

6.2 Technical Check List

In addition to the important strategic criteria, the technical criteria are a basic prerequisite as well as a basic building block for sustainable success in the area of social commerce. It is important to understand how the technology works and how to use it, and to have the know-how within the company to enable an increase in sales. The effort required for technical implementation also depends on the selected social media platform on which the offer is to be made available.

	Mr. Beast Burger	Cluse	Under armour
Open a social media channel and turn it into a business profile			
Enter information about the company (address, phone number, e-mail, URL to the website)			
Use Linktree or similar (multiple links thereby possible, e.g. to press releases, podcasts, landing pages with special offers, etc.)			
Integrate Instagram Shopping (include products in the social commerce store)			
PCs and mobile devices must be technically up-to-date (updates)			
Include link to imprint (mandatory)			
Website, which is currently still necessary for the conclusion of the purchase, must function technically smoothly (purchase process, payment method, etc.)			

6.3 Limitations and Restrictions

There are some limitations and restrictions which should be taken into account:

– A very current topic, where it is not possible to foresee which additional functions and possibilities will occur in the next development steps—The direction for the future is currently not yet completely clear

- Legislative changes must be made in order not to block development, but also to protect users
- Only three application examples were considered, therefore only a low significance for the time being
- Since there is still no generally accepted definition of the term social commerce, the definition space itself was outlined and described in this work.
- The results are based on a first small survey and need to be further validated by a larger data set.

6.4 Future Research

The future research will concentrate on the following three areas:

- Increase the number of "case studies or application examples".
- To check if the definition is generally valid.
- To have a higher comparability.
- Examine different industries within social commerce (jewelry/clothes/food/services).
- Analyze individuals and companies separately.

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Integrated Digital Sales Platform for the Solution of Customer Needs

Antonia Louisa Biel

Abstract The digital transformation is pervasive, ubiquitous, and changing not only the market, but also its people and environment. Moreover, the COVID-19 pandemic speeded up the adoption of digital technologies significantly. The entire world population was confronted with an unpredictable situation and had to immediately adapt their daily lives completely. It had a significant impact on the work environment and transformed the way companies in all sectors and regions do business. Also, in the area of B2B sales, the pandemic forced buyers and sellers to undergo a huge digital transformation. These changes confront sales with new customer requirements, diverse opportunities and challenges of digital transformation, and various new possibilities to support and accelerate B2B sales through digital modules.

Keywords Digital sales · Digital transformation · Platform economy · Customer experience

1 Introduction

"(…) COVID-19 has pushed companies over the technology tipping point—and transformed business forever" (McKinsey & Company, 2020, n.p.). Many things are no longer as they were before COVID-19. Customer events or trade fairs could not take place, restaurant visits have been forbidden, personal contacts have been restricted, schools were closed, offices have been emptied as employees have been instructed to work from home. Many people became sick, and the health care system has been reaching its capacity limits. The COVID-19 pandemic forced the entire population to change (Zeuge et al., 2020).

In addition to that, the pandemic significantly increased and accelerated the use and adoption of digital technologies. The entire global population was confronted with an unpredictable situation and had to immediately adapt their daily lives. This

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also had a significant impact on the work environment and transformed the way companies in all industries and regions do business (McKinsey & Company, 2020). Many digital projects have been initiated, launched, and implemented. Digital acceptance among both customers and companies jumped forward by five years within about two months (Baig et al., 2020).

Also, in the area of sales, the COVID-19 pandemic required an enormous digital transformation among B2B buyers and B2B sellers (McKinsey & Company, 2020). During the lockdown, field sales visits or face-to-face meetings with customers were almost impossible and very limited (Kober, 2020), i.e., companies feared losing personal connection to their customers. But what initially started as a crisis response has now become the new normal, with significant implications for how buyers and sellers do business in the future (Bages-Amat et al., 2020). But it's not just the workflows that have changed—employee attitudes have too. Most B2B has moved to remote or digital. And in the sales sector, the question arises to what extent this attitude will shift back after the COVID-19 pandemic and how digital sales is able to support the process (Bages-Amat et al., 2020). The changes confront companies with new customer requirements in B2B, various new possibilities to support and accelerate sales through digital modules, such as the riding topic of digital platforms.

2 Theory

Before analyzing which significance digital sales will play in the future and if a digital sales platform in the B2B area is able to satisfy customer needs and represents an option to support sales, it is of great importance to showcase the latest findings of available research on the topic.

2.1 Sales

Sales primarily comprises the distribution of goods, the management of the sales force organization as well as the maintenance of the relationship between a manufacturer and the retail trade or, in the case of direct sales, with the end customer (Kenning, 2018). It plays a central role in the success of a company. Its key responsibility is to ensure that sales are made. The sales division generates the revenue and thus becomes responsible for ensuring the company's existence (Thonet, 2020). Measured in terms of costs, sales is by far the most important instrument of companies in almost all industries (Hiemeyer & Stumpp, 2020).

In this context, B2B sales represent the trade between companies. This sector primarily comprises the supplier business and the entire area of services in the business customer sector (Hiemeyer & Stumpp, 2020; Wirtz, 2013). Within this type of market transaction, several characteristics can be highlighted that need to be considered while performing sales activities. For example, the market structure of B2B

is often highly segmented, often characterized by an oligopoly situation, marked by complex or technically complicated goods that require significantly more explanation than for other markets, or the importance of maintaining relationships (Hiemeyer & Stumpp, 2020).

2.2 Digital Sales

The topic of digital transformation in the sales sector is becoming increasingly important, and in the future, sales success will depend even more on successful digitalization than before (Kober, 2020). The term digital sales refer to companies using digital channels and tools to distribute their products and services (Barysch, 2020). On the one hand, the term describes digital sales channels and, on the other hand, digital sales processes (Barysch, 2020; Rhapsody, 2020).

There are three current key reasons why digital sales is emerging and increasing in relevance. First, there is Digitalization. It is currently one of the most important drivers of change within society and business (Schellinger et al., 2019). Digitalization has a wide impact on the business environment and can fundamentally change both, the entire business model as well as individual processes in a company. To remain competitive in today's marketplace, companies need to understand, implement, and successfully manage the challenges that arise with digitalization (Thonet, 2020).

Second, the current COVID-19 pandemic speeded up the adoption of digital technologies significantly as well (McKinsey & Company, 2020). Since the beginning of the pandemic, the entire world population was confronted with an unpredictable situation and had to immediately adapt their daily lives completely (McKinsey & Company, 2020). Also in the sales sector, COVID-19 led to different changes, and due to various regulations, the possibilities for action were strictly limited. During lockdown, field sales visits or face-to-face meetings with customers were either not possible or only possible to a limited extent (Kober, 2020). Trade fairs and business trips were cancelled, bans on entering other countries were exposed and personal access to customers was restricted (Thürling, n.d.). "Like almost all functions in essentially every sector, the shift to remote selling was born of necessity as lockdowns, shelter-in-place orders, and quarantining have forced people to stay at home" (Gavin et al., 2020, p. 5). Consequently, the pandemic led B2B buyers and sellers to undergo a huge digital transformation. And for the time being, to only make use of digital instruments (Bages-Amat et al., 2020). "The scale, speed and scope of the COVID-19 pandemic have acted as a critical juncture that has accelerated [that] (…) abrupt change process" (Marinov & Marinova, 2020, p.365).

Third, the B2B customers are pushing sales to change (Thonet, 2020, p. 17). In business, digital technologies and communication channels have by now become an integral part (Schellinger et al., 2020, p. 184). Especially in the area of B2B sales, most of the purchasing process is already complete when decision-makers first contact a sales representative. Here, a large amount of research is conducted over the Internet (Gavin et al., 2020, p. 3). With this development, sales is shifting towards

the pull principle: the customer decides when sales comes into focus, what needs he wants to have satisfied and how, and in what form the interaction should take place (Thonet, 2020, p. 22).

3 Research Method

3.1 Data Collection

In order to emphasize the findings of the previous research, the research method of qualitative interviews was used. Therefore, nine structured interviews according to Mayring were conducted. The selected experts demonstrated a high level of expertise on digital sales, as they practice professional careers in the areas of B2B sales or purchasing, as well as in consulting activities concerning this topic.

3.2 Variables

Different questions were defined, and suitable categories were formed. These were chosen because of particular interest to examine the extend of future importance of digital sales and how digital sales is able to support the sales process. In addition, the investigation included determining the extent to which a digital B2B sales platform can fulfill customer requirements.

3.3 Statistics

It can be emphasized that all experts agree that the COVID-19 pandemic has accelerated and intensified digitalization in B2B sales. In addition, people were made aware that digital also works well and brings efficiency and effectiveness benefits. Furthermore, there is also a 100% agreement that digitalization is already having a significant impact on sales and will continue to do so in the future.

Thereafter, different advantages of digital sales were highlighted. The ability of a customer to conduct self-service, not being tied to a specific time or place, acting free from traditional working hours, being able to obtain information quickly, having a better comparability, and saving time. In addition, it was underlined that transactional activities in particular can be made more efficient and take place faster and better. Furthermore, transaction and travel costs can be reduced, and by avoiding travel, a company can act more sustainably. But on the other hand, the experts also highlight some disadvantages. The use of digital tools can eliminate the personal appreciation

Interview probands/ Modules		E1	E3	E4	E5	E7	E8	Absolute number	Percentage
Written content	A	2	5	3	4	4	3	21	23%
Visual content	B	3	4	2	2	5	5	21	23%
Events	C	1	2	1	5	1	2	12	14%
communication	D	4	3	4	1	3	1	16	18%
Online shop	E	5	1	5	3	2	4	20	22%
Sum								90	100%

Fig. 1 Interview results: ranking for modules of B2B platform

customers are used to, trust and a personal relationship can be difficult to build, and personal negotiations are eliminated.

In addition, the research showed that 66% of the experts think that it is likely to use a digital B2B sales platform. They are convinced that there are already many sectors that use digital platforms and they themselves already know or use options such as online stores, automated reordering, order overview, tracking, product presentation, workshops, webinars, showrooms, booking of service appointments, and setting of automatic maintenance intervals.

Moreover, the experts provided a subjective evaluation of which options are most important to them in a digital sales platform. As can be seen from the Fig. 1, the options written content, visual content and online shop are of highest importance. Nevertheless, through further investigation it also became apparent that it is very individual what option suits one best.

4 Results

The objective of this analysis was to determine to what extent digital sales will play a role in the future and if a digital sales platform in the B2B area is able to satisfy customer needs and thus represents an option to support sales.

In this context, the findings show that Digitalization will change the sales sector to a great extent.

Digitalization is currently one of the most important drivers of change within society and business and therefore holds a great impact on the sales sector as well. In the last years, sales already developed rapidly. Today's stage of sales is characterized by automation and computer-controlled processes. Here, through the collection and evaluation of personal data about the customer, the identification of his needs is faster and more targeted. This process leads to global competitive pressure and a

massive range of offers, as customers can view any product, at any time and place. In addition to that, the customer is able to obtain the information he needs before making a purchase decision by himself, even without a salesperson. Also, due to the Internet and its range of information, the customer holds data sovereignty. Therefore, sales must change its focus and increase customer benefits. According to that, intelligent pull measures and intensive lead nurturing based on aggregated, individual customer data are becoming indispensable. Furthermore, this development is leading to an increasing merging of sales & marketing. In the future, companies need to position themselves digitally in order to keep up with the competition. Consequently, digitizing sales will be critical to the success of one's business. Moreover, as a result of new digital support options, a customer no longer goes through a traditional purchasing process. He embarks on his customer journey where he can have various digital touchpoints with a company. Therefore, the importance of aligning these touchpoints and providing him with an increasingly fluid experience with the company is increasing as well.

Furthermore, digital sales is becoming increasingly important for B2B. For B2B sales, digital is the wave of the future. Nowadays, customers more and more expect well-developed digital experiences like those they already experience in the B2C sector. In addition to that, the age structure of people working in B2B purchasing is also changing. More than every second one already belongs to the generation of digital natives. This generation grew up with the Internet and mobile communications and is therefore characterized as technology-savvy. Their preferred way of communication and finding information is online. As a result, the Internet is becoming their focus. This development was also particularly emphasized by the COVID-19 pandemic last year. Since sales could be done primarily digitally or through digital tools, the attitude of the masses has also changed significantly and the openness towards digital sales has increased. In this context, a growing preference for digital self-service, or remote human engagement in B2B sales could be observed. Nevertheless, the increasing importance of digital sales does not mean that the sales force is being dispensed. Face-to-face contact will continue to be essential for sales success in the future. This is particularly necessary for B2B products, systems, equipment, and services that require detailed explanation or when large quantities of money are involved. Despite great changes, especially the traditional way of maintaining relationships will remain; for example face-to-face meetings, events, fairs, and dinners. However, these activities will be supported by entirely new ways of building relationships and closing deals. B2B Sales is developing rapidly and will continue to include digital channels. Nevertheless, digital interactions will coexist next to traditional ones to close the deal. However, digital sales channels will increase in relevance, and companies that are unable to keep up will disappear from the market.

In addition to that, a digital sales platform facilitates the customer journey. As a result of new digital support options, a customer no longer goes through a traditional purchasing process. He runs through a customer journey and has various customer touchpoints with a company. There, every customer experiences his personal customer journey with individual touchpoints. As nowadays customers expect a consistent appearance with consistent quality where they can switch back

and forth between different touchpoints seamlessly, companies face the challenge of linking and aligning their various channels. A digital sales platform could therefore facilitate the customer journey and support companies with this challenge as diverse touchpoints can be combined in one application. It is therefore able to provide an omnichannel experience for B2B customers, as different sales channels can be united there. As a result, customers can access every channel, information, or event from one place. Because the software and its data are not split up, customers can experience a more consistent and seamless experience. They are able to smoothly navigate from one customer touchpoint to another without a changing experience. This also allows the company to have better control over their customers' experiences, more easily deliver great and optimized content and evaluate the data.

But nevertheless, a digital sales platform can only be a part of the solution for the interests of suppliers and customers. In the customer journey, there are some phases where digital sales is much more desired than traditional sales, from the customer's side as well as from the supplier's side. Today, a customer's search for information largely takes place online and with self-service. Here B2B customers value speed, quality, and transparency. In addition to that, the trend is going towards customers wanting independence in time and place. In this context, a service that is directly available is favored. Moreover, while doing repurchases, cross selling, and upselling, digital options are also mainly preferred. Here, they seek a buying experience that is quick and smooth. As a result, customers want an omnichannel experience with the opportunity to decide on their own, what content they want to see, and in what form the interaction should take place. In addition to that, they desire high comparability, and information overview, as well as fast and direct tools. Consequently, a permanent, seamless, and data-driven experience needs to be provided. In addition to that, suppliers seek to offer their customers outstanding experiences and therefore address their target group customized with a strong positioned brand. In this context, the trend is also going towards people in sales wanting to work independently of time and place. Moreover, the recent experiences showed that digital communication can be direct, quick, and international, and therefore save time as well as travel costs. In the future, these findings will no longer be dispensed with. In addition, the constant interest to decrease costs and increase efficiency counts among a permanent interest of suppliers. A digital sales platform can satisfy all these previously mentioned interests and of delivering added value to both parties. However, it is not able to replace all interests. Especially the urge for personal contact, face-to-face relationship building, and earning trust is not favored to conduct via digital sales platforms. Beyond that, it depends strongly on the respective customer and supplier and which individual preferences they have. Therefore, a digital sales platform is only able to support sales and represents a part of the solution.

5 Conclusion and Limitations

As the results have shown, digital sales will play a great role in the B2B sector, and a digital sales platform is able to solve several needs of B2B customers. As the COVID-19 pandemic has changed lives permanently and accelerated the impact of digitalization significantly, it can be underlined that Digitalization will change the sales sector to a great extent and especially for B2B, digital sales is becoming increasingly important. Moreover, a digital sales platform facilitates the customer journey and is part of a solution for the interests of suppliers and customers. All in all, digital sales is already part of the present and has gained in importance, especially in recent months. Consequently, it is also important that companies increasingly deal with the platform topic in the area of B2B sales in order not to fall behind the competition and to meet the needs of their customers.

The pandemic has significantly increased the relevance and openness of people to digital topics. Also, the experts interviewed believe that digital sales will gain relevance in the future and that platforms in this area will be an emerging topic. Therefore, it is imaginable that sooner or later almost all companies will want to expand their sales area digitally and work with the support of platforms. Especially for large and international companies, or those that offer standardized products, the platform topic will soon become highly relevant.

Nevertheless, it must be determined individually, depending on the company and customer group, which platform options are relevant, and which traditional processes can be replaced by digital ones. As a result, individual analyses and adjustments are essential to deliver customers a permanently relevant customer engagement through digital support options. In the end, suppliers' digital strategies will always have to change in line with evolving customer preferences.

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Social Commerce as a Value Driver—Opportunities and Limitations of Direct Sales

Franziska Niemann

Abstract Social platforms are no longer exclusively about connecting users. More and more companies realize the potential of using social media as a marketing channel and interacting with their target groups. It has never been easier to spread advertising messages, attract attention for a brand, and obtain immediate feedback. Social media platforms become accessible storefronts putting traditional shopping structures to the shade. With the success of using social platforms as an additional sales channel, a new form of e-commerce is emerging—social commerce.

1 Introduction

Social commerce leads to changes in various areas. The retail sector is confronted with a digital disruption that questions existing business models and poses a significant challenge for stationary retail. The growing influence of e-commerce is changing customer needs and shopping behavior. To survive in a constantly changing market environment, retail companies need strategic concepts that cover all aspects of selling and communicating with customers (Bailey, 2020, pp. 6–8). Therefore, companies are forced to adapt to new structures and find a way to position themselves successfully for sustainable growth. It is a matter of rethinking the funnel and designing a contemporary social media presence. Managing the community becomes a central task, and employees become social sales managers (van Rinsum, 2020, p. 7).

In the following pages, a general understanding of the relevance of social commerce is created. The extent to which social commerce can be a value driver for companies is determined, and a statement is made about the possible future with the associated opportunities and limitations.

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2 The Emergence of Social Commerce

A new chapter in marketing has begun with the age of social media platforms. The term "social media" refers to the networking and communication of users via the Internet in text, image, video, and sound. Representatives are social networks, weblogs, microblogs, wikis, and photo and video platforms. Chats and discussion forums, virtual contact and file-sharing networks are also included (Bendel, n.d., n.p.). There is a steady growth in the use of social media worldwide. In January 2020, the number of monthly active users of social networks worldwide was around 3.8 billion. Compared to the previous year, the number has increased by around 9.5 percent (Statista, 2020b, n.p.). Thus, it can be said that social media are becoming more and more present in people's everyday lives. Today, the world's largest social media platforms include *Facebook*, *YouTube*, *WhatsApp*, *Instagram*, *TikTok*, *Snapchat*, *Twitter,* and *Pinterest*. With over 2 billion users, *Facebook* is at the top (Statista, 2020a, n.p.).

Due to the high user numbers, social media platforms are also becoming interesting for companies. Social media offers new touchpoints with consumers and becomes an additional channel for advertising and sales, as customers can be addressed more efficiently (Manu, 2020, n.p.). It is used to design company profiles, for product presentations, for recruiting new employees and for customer service (Poleshova, 2019, n.p.). The target of social media marketing is to inspire customers to buy a product and lead them to a product website to complete the purchase. In contrast to social media marketing, social commerce means that the entire buying process, including the purchase, takes place on social networks without leaving the app (van Rinsum, 2020, p. 4). Social commerce describes a form of e-commerce that focuses on the active participation and relationship of customers. This includes purchase recommendations, comments, or ratings from customers that influence the purchase decisions of other customers (Internet World, n.d., n.p.).

Social trade is on the rise worldwide (van Rinsum, 2020, p. 6). In the course of this work, the opportunities, and risks of using social commerce were analyzed. The results of this analysis allow an initial assumption to be made about the relevance of social commerce for companies and are summarized below.

The most significant opportunity of social commerce lies in the increase of a company's sales. Via social media, many people can be reached at low cost. With a professional presence and a social media strategy, a rapid increase in reach is possible. The higher the reach, the better the sales figures (van Rinsum, 2020, pp. 32–33). Companies are also closer to their customers and can gain more data about them. The potential to gather information about customer behavior, expectations, and preferences is enormous (KPMG, 2016, p. 41–47). Customer centricity takes on a new meaning through social media. Precise target group definition for the playout of advertising is possible. The problem of shopping cart abandonment is also reduced, as social commerce makes it quick and easy to complete purchases via social media without having to leave the app (van Rinsum, 2020, p. 5–7). It can be concluded that social commerce can lead to a higher conversion rate.

On the other hand, the biggest challenge is the professional handling of customer relationship management and the required adaptability to new customer needs. Today, confidence in the brand is more important than ever for companies. Therefore, companies must act transparently to build trust in the long term. This is both a challenge and an opportunity because if companies get this right, the bond from the customer to a brand can be strengthened and thus have a positive impact on brand loyalty. If customer relationship management is neglected or underestimated, it can lead to dissatisfied customers who can quickly spread their frustration via social media. A so-called "shitstorm" can arise and have a negative impact on a brand's image (Fischer, 2020, n.p.).

3 The Influence of Social Commerce

Understanding which areas are impacted by social commerce is fundamental to the investigation of whether social commerce is a value driver. Basically, the work assumes that the following areas are influenced and changed by social commerce: Customers, companies and the advertising industry. All areas are exposed to changes and must adapt to them to operate social commerce successfully. This requires inevitable rethinking and strategy. Companies must be able to serve new trends and focus on the customer (Deutscher Dialogmarketing Verband e.V., 2020, p. 97).

Things are also changing for consumers. Social platforms are no longer exclusively for social interaction; they are becoming commercial. Users are confronted with advertising every day, consciously and unconsciously. The high frequency of visits and the platforms' use as sources of inspiration and information make social media a relevant shopping channel (Albert, 2018, n.p.).

As mentioned earlier, social commerce affects buying behavior, as customers will not want to leave the app to make a purchase in the future. Therefore, social media is not just a step on the customer journey but the final stop (Roschmann, 2020, n.p.). The advertising industry must also respond to this because it changes the way a customer wants to be addressed and reached. Communication is more personal and, above all, faster. The advertising industry must adapt to this to find the right way to reach the customer specifically with the desired brand messages (Walter, 2020, n.p.).

4 Social Commerce as a Value Driver

All factors that increase the value of a company or brand are considered value drivers. These can be processes or products, for example. A distinction is also made between financial and operational value drivers. Financial value drivers are financial performance indicators such as return on sales, capital expenditures, or cost of capital. Operational value drivers are indirect success factors at the various corporate levels that influence the company's success or brand equity (Weber, n.d., n.p.). Brand equity

means the brand's perceived value according to its customers. Brand equity cannot be measured precisely, but it is an essential success factor to grow the business. Brand equity is formed from brand awareness, brand association, perceived quality, brand experience, brand preference, and brand loyalty. (Canva, n.d., n.p.). The following findings show that social commerce can have an impact on each of these factors and thus brand equity.

Brand awareness means that the consumer is familiar with the brand, for example from regular conscious and unconscious engagement. This is considered an important target of communication activities (Macdonald & Sharp, 2003, p. 1). Advertisers can reach many potential customers and increase brand awareness via social media due to the high number of users. Thus, a company's or brand's profile page on social media can serve as an additional advertising channel. Another option is the use of influencer marketing. In this case, influencers act as brand ambassadors, and users are exposed to a brand through additional profiles or channels (Ludermann, 2012, n.p.).

Brand awareness is also positioned as an essential first step in building associations. Brand association means anchoring information with a brand in memory (Macdonald & Sharp, 2003, p. 1). In media psychology, this is also referred to as the priming effect. Human memory is an associative network. A preceding media stimulus increases the availability of knowledge stored in memory, which is more likely to be used to interpret subsequent information (Trepte & Reinecke, 2013, p. 117). If this is transferred to social media, it can be said that the visual representation of a brand creates associations that are sustainably linked to the brand. Accordingly, a company's own social media presence can also influence its image. In this regard, it is crucial to develop a brand story and personality to ensure that customers see a company or brand the way it wants to be seen (Canva, n.d., n.p.).

Next indicators of brand equity are brand experience and perceived quality of the brand. The advertised product should be of good quality as well as the shared content on social media should be relevant and appealing to the customer (Bauer, 2016, n.p.). Brand experience is about how a customer experiences and perceives a brand overall. In this context, community building is a key task. Continuous interaction with the community strengthens the relationship with the target group and enables a better understanding of customer needs (Tanasic & Casaretto, 2017, p. 11). Open and authentic communication with customers promotes the positive perception of a brand. In addition to interacting with customers, it is equally important to identify problems and solve them quickly so that customers feel taken seriously. Building and maintaining customer relationships allows for a stronger bond with the consumer and can support brand preference (Canva, n.d., n.p.). Brand preference means that the consumer prefers the brand compared to other products and will choose it when making a purchase. In the long term, this can lead to brand loyalty, in other words, a long-term commitment to the brand (Kotler et al., 2016, p. 726).

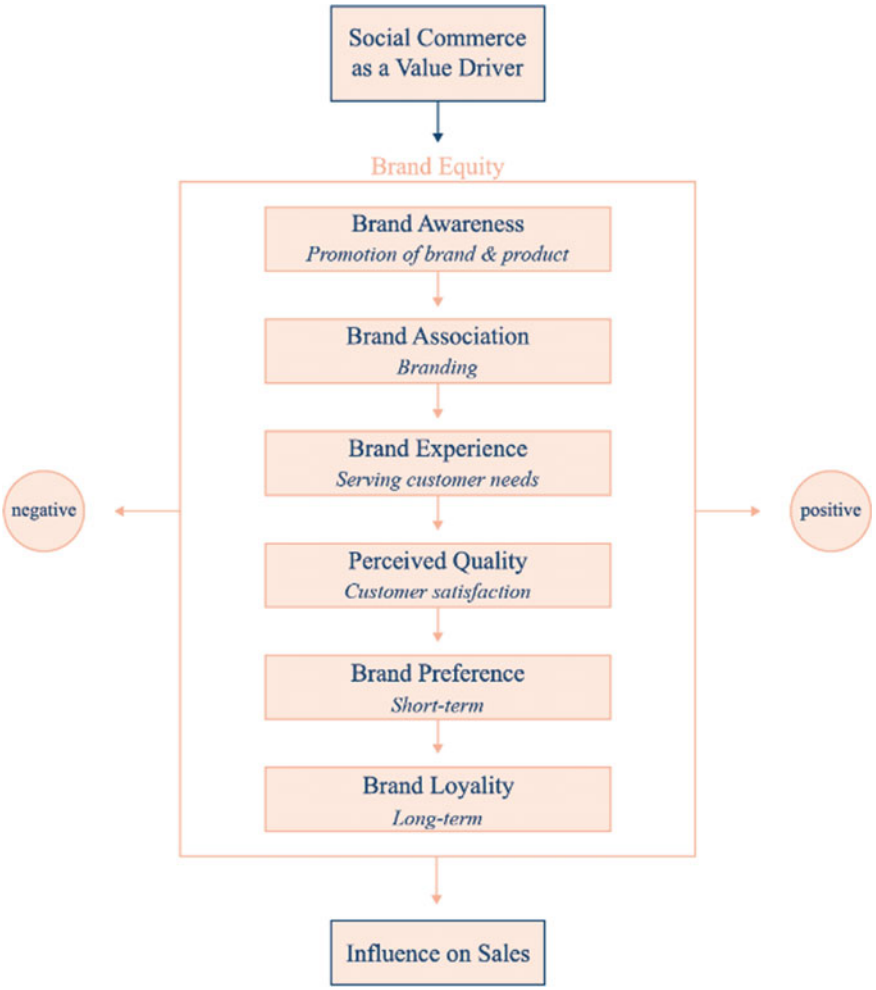

Fig. 1 Customer journey of social commerce

5 Model

In the context of this work, a model was developed based on the previously gained insights. It illustrates that social commerce can have an influence on sales and thus represent a value driver for companies. The following application example in the form of a customer journey explains it in detail.

If a company decides to work with social commerce, the first step is to present itself on the respective platform and promote its own brand or product. The aim is to attract the attention of potential customers and create awareness. This is followed by branding, which means associating own services and products with certain messages

and emotions (Gründerszene Lexikon, 2019, n.p.). This step determines how the brand is perceived and which associations are set in the consumer's mind. It is crucial for whether the consumer continues to engage with the brand or product or loses interest. If the consumer remains interested, the next step is about the brand experience, such as customer service and the purchase process (Canva, n.d., n.p.). From the company's perspective, this step involves serving customer needs. A positive perception of the brand can subsequently lead to a purchase. If the product's perceived quality also satisfies the customer, the customer may develop a brand preference (Bauer, 2016, n.p.). If the customer is not satisfied, he or she is unlikely to buy a product again. Furthermore, changes in opinion can also lead to a customer jump off, for example, due to misconduct on the part of the company (Fischer, 2020, n.p.). Overall, it can be said that a customer can jump off at any time if a company does not behave appropriately on social media or does not satisfy customer needs. The individual steps determine the outcome. The result is a positive or negative impact on sales. Therefore, customer relationship management plays a significant role throughout the entire customer journey. Good customer relationship management can also win back customers who were thought to be lost (Bohnes, 2019, n.p.). If a customer feels comfortable with the brand in the long term, he will remain loyal to the brand.

6 Conclusion & Future Research

Social commerce can be a value driver for companies, in both a positive and negative sense. Due to the rapid interaction and distribution of information in social media, companies face some challenges. Shitstorms can occur more quickly, damage a company's image and be difficult to control. Companies need to be able to respond quickly and offer solutions to prevent this from happening. Nonetheless, social commerce offers several opportunities to positively impact a company's brand equity and sales. Social commerce should not be underestimated. Companies need to address the topic early on to be able to serve this market. A clear definition of targets and a detailed strategy are necessary for the successful use of social commerce.

In summary, several arguments suggest that social commerce will establish itself as a successful form of e-commerce. The number of social media users and the time they spend on these platforms every day have been rising steadily for years. In addition, more and more users are responding to advertising and making purchases via social media ads. Social media also serves the trend of short video formats and companies can showcase their products with a wide range of features. Reaching customers has never been easier, so it would be a mistake not to take advantage of this opportunity.

This thesis has laid the foundation for a successful approach to social commerce. The next step would be the operational part, which means developing a clear implementation strategy based on the model. Following the different criteria that have been listed in this thesis will have a positive effect on the profitability of social commerce.

In addition, quantitative research is sensible to continue this work and to expand the knowledge.

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E-commerce, Digital Transformation and the Environment, in the Context of Covid-19

Tamar Abzianidze

Abstract The purpose of the paper is to investigate the linkage among E-commerce, digital transformation, and the environment, in the context of Covid-19. The online world accelerated digital purchases and opened the doors to international markets, creating both positive and negative outcomes for the environment. Pandemic resulted in increased food ordering and E-commerce activity, and thus countless cardboard boxes and polythene bags appeared in our streets and landfills. COVID19, limitations on mobility, intensification of ghost kitchens, and revenge shopping have greatly affected waste management. As per the Georgian Civil Aviation Agency, the cargo volume has increased in a year by 5.67% reaching 1,131,749 tons in 01.2021. When the world is only 8.6% circular, one of the best solutions to implement the UN SDGs, especially SDG 12, lays in the transition from linear to the circular economy and the collaboration among academia, private sector, and the government, hence the qualitative research plays a significant role in this regard. This paper explores published online sources.

Keywords Covid-19 · Digital transformation · E-commerce · Circular economy · Waste management

1 Introduction

The online world has accelerated digital purchases and opened the door to worldwide Electronic Commerce (E-commerce) that on the one hand, have given to all states equal chances for accessing the international markets and eradicating poverty in their respective societies and on the other hand, trade opening has brought negative consequences on the environment (The World Trade Organization publication, 2020).

The purpose of the paper is to investigate the linkage between E-commerce, digital transformation, the Internet, and the environment, in the context of Covid-19. It is crucial to assess cargo transportation processes commenced from the origin point

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until the final destination. In particular, I would like to concentrate on which shipping transportation means have the least negative consequences on the environment and different repercussions of conveyed freight between developing and developed countries, especially during the pandemic. On top of that, this paper examines the essence of access to the Internet and Digital transformation for E-commerce and the environment. Furthermore, this paper specifies the best practices of the logistics sector and manufacturing companies that provide services/products with less negative outcomes to the environment as well as brings more value to the United Nations Sustainable Development Goals 2030 SDGs (The United Nations, 2016) This paper also surveys the cooperation between the UN and the World Trade Organization for the SDGs in the context of E-commerce and the Environment (The World Trade Organization publication, 2020).

2 Research Description

The spread of Covid-19, lockdowns and limitations on mobility have significantly intensified online revenge shopping on both national and international levels. Globally, the pandemic was a turning point for e-commerce as many consumers "went digital". As for the psychological side of panic buying, according to the survey, it is divided into three fundamental psychological needs." Autonomy (or the need to feel in control of your actions), relatedness (the need to feel that we are doing something to benefit our families), and competence (the need to feel like smart shoppers making the correct choice)" (Echegaray, 2020). Consequently, people around the world who have access to the Internet have started getting acquainted with new digital skills and the tools of E-commerce as well as comparing prices, items, and quality offered by national and international online shops.

As a result, consumers have discovered that if they search a little more before buying the desired product, they can realize that the international market offers countless products at a more affordable price than an offline/online shop exists in their respective country. Furthermore, the topic of international shipping is introduced and customers explore their options regarding the most reliable, affordable, and fast transportation companies that convey the freight to their country, and as a result, customers are saving money.

E-commerce was triggered on a national level due to lockdown measures that encouraged revenge consumption and the reason behind it lays in their psychological/mental side and self-gratification caused by the combination of many aspects of life at home. The distance working created the need to organize the home-office environment properly, as well as online learning increased the purchasing of more gadgets and office-related furniture, stationery, and other relevant items (Echegaray, 2020). Additionally, data from the United States at the onset of confinement measures shows that, generally, purchases increased most for items related to personal protection, home activities, groceries, and ICT goods (such as computer monitors) (OECD Policy, 2020). It is important to mention that living habits have dramatically changed,

people have started cooking at home and purchasing more grocery/supermarket products (Lufkin, 2020). On top of that, some individuals discovered that handcrafts and painting have significant role in their life and they started to purchase appropriate items for such activities. Consequently, according to the needs of individuals, people steeped themselves into online shopping and one of the main reasons is safety as they feel protected at home and there is no need to go to the supermarket or the shopping center and stand in a long queue. Hence, comfort and crowd free safety are outstanding reasons why consumers have migrated to E-commerce. Additionally, the importance of digital management and a quick and reliable delivery system expansion with the use of automated technology in the warehouse has boosted the motivation of customers and as a result, accelerated the speed of buying.

E-commerce companies like Amazon, Taobao, Alibaba, eBay, Trendyol are growing even stronger and have become the most demanded E-commerce giants on an international level (Merton, 2021). The World's Top Online Marketplaces. The main reasons for achieving strong growth are the variety of items offered, the quality and the affordable price, as well as AI and analytics. These companies have hired many high-qualified employees in Research and Development (R&D), IT, Marketing and the business analytics departments, which on the ground of data that you and I provide while using their website are analyzing our needs and desires as well as creating outstanding offers on the best variety of items. For instance, Turkey's largest e-commerce platform Trendyol that is focused on digital transformation and its R&D investments of approximately 45 million TL per year have achieved impressive results. Moreover, Trendyol was bought by Chinese internet giant Alibaba (Trendyol the largest e-commerce platform in Turkey, Wikipedia).

3 Research Methodology

The paper addresses the acute problem of the Covid-19 pandemic and digital transformation that accelerated the speed of international e-commerce and negatively affected the environment. As the topic is novel and the problem recently arose the paper reviews new insights, developments, and the best cases of various companies, which have responded to the problem of increased international shipping, generated CO_2 emissions, and sky-rocketed waste and garbage as well as regulations from various international organizations regarding the issues. Data is collected according to Georgian Civil Aviation Agency and International organizations as well as particular e-commerce companies' open data. As a result, the topic needs more attention and research to find the main causes and negative consequences to tackling the problem.

4 Researching Results

As a result of skyrocketed worldwide E-commerce, the use of cardboard packaging and polyethylene bags have grown cardinally, as such materials are used by the groceries/markets, and online shops. As for the statistics, in the United States of America "e-commerce share of global retail trade has increased from 14% in 2019 to about 17% in 2020" and Global e-commerce jumps to $26.7 trillion, fueled by COVID-19" (The US EPA, 2020). It is obvious that countries with better digital infrastructure and access to the Internet have been involved in E-commerce more than others that have the scarcity of the Internet. For instance, "The People's Republic of China (hereafter China), where the share of online retail in total accumulated retail sales between January and August 2020 reached 24.6%, up from 19.4% in August 2019 and 17.3% in August 2018" (How COVID-19 Massively Changed the E-commerce Industry, 2020). More International trade means more packaging to the shipping receiver's country. Not only more packaging and polyethylene bags create damage to the environment, but the production of new items and transport have a huge negative outcome, as well. For instance, the world's largest CO_2 emitter China comprises the leading country of fossil fuels combustion and industrial processes. Far better situation exists throughout the European Union, where annual CO_2 emissions fell by 10% relative to 2019 due to lower electricity demand across the bloc and an 8% increase in output from renewables (Global Energy Review, 2020).

As for E-commerce in Georgia, Georgians spend 3.3 times more on international online shops than on the national Market and the main reasons are the low choice of items in physical stores, high prices, and poor customer experience of the local online Market (Galt & Taggart report, 2020). As a result, Ecommerce has significantly increased CO_2 emissions due to transportation and over packaging that affected waste management, especially the paper sector. As per the Georgian Civil Aviation Agency, cargo & freight aviation has increased by 5.67% reaching 1,131,749 tons in January 2021 (Georgian Civil Aviation Agency, 2020). This could provoke serious consequences for a country like Georgia, without waste management technologies and emergency policies. Consequently, countries with a linear economy are in a worse situation due to the gathered mountains of waste in landfills and produced more greenhouse gas emissions.

Globally, transportation accounts for 14% of the whole greenhouse gas emissions of the economic sector in 2020. Poor air quality due to international shipping accounts for approximately 400,000 premature deaths per year worldwide. Shipping containers produce more greenhouse gas emissions than some small countries and Aviation accounts for around 2.5% of global CO_2 emissions (Ritchie, 2020).

Trade promotes economic growth, however, without effective policies, it can lead to Environmental degradation. Much freight transport is carried by sea, which comprises the least carbon-intensive mode of shipping. Here arises the question of what we can do about it to tackle the waste mountains in landfills as well as tackle climate change and global warming. The solution lays in transforming every

country's linear economy into a Circular one, pushing more renewable energy, innovative technologies, less polluting fuels, eco-friendly means of shipping that can decrease the CO_2 emissions. These topics are ongoing at International Institutions such as International Civil Aviation Organization (ICAO), International Maritime Organization (IMO), World Trade Organization (WTO), and the UN. The WTO is putting into practice the UN SDG17 "partnerships for the Goals that aims to build collaborations globally for sustainable development via adopting more sustainable policies, opening up trade in low carbon equipment".

On an International level, the WTO Secretariat constantly collaborates with the UN Environmental entities to ensure mutual support between trade and the Environment.

When the world is only 8.6% circular we need to transform from a linear to a circular economy and sustainable transport and waste management play a crucial role in this regard (Circle Economy, 2021). "There are a number of SDG targets directly linked to transportation, including SDG 3 on health (increased road safety), SDG 7 on energy, SDG 8 on decent work and economic growth, SDG 9 on resilient infrastructure, SDG 11 on sustainable cities (access to transport and expanded public transport), SDG 12 on sustainable consumption and production (ending fossil fuel subsidies) and SDG 14 on oceans, seas, and marine resources. Regarding shipping by sea SDG 14" "Life below water" international shipping takes place on the world's oceans, the work of IMO (Goal 14: Conserve and sustainably use the oceans, seas and marine resources) which is responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships, is integral to most, if not all, of the SDG 14 targets. To create a sustainable shipping environment packaging plays a huge role, as polythene bags end up in landfills, polypropylene slowly degrades and can take anywhere from 20 to 30 years to totally break down. It can take between 400 and 1000 years for plastic bags to decompose (IMO and the Sustainable Development Goals). Consequently, the 3R concept of Reuse, Reduce and Recycle should be implemented in the packaging and shipping industry in order to fulfill sustainable shipping practices (Bahrainiin, 2020).

In this paper, I would like to exemplify the best case of the company Deutsche Lufthansa AG (hereafter "Lufthansa") that under corporate responsibility culture made a historical achievement in the international shipping industry via kick-starting the CO_2 neutral freight flights through using Sustainable Aviation Fuel (SAF) that can be used in aircraft without any problems and comprises an alternative to fossil kerosene (Lufthansa news, 2020). As the company's slogan is 'Say yes to the world'.

Lufthansa proved that "Luft" is the most significant part of our life that we have to preserve for current and future generations in order to maintain life on our common planet the earth. "Lufthansa Cargo has been able to reduce its #CO_2 emissions by 50% through continuous fleet modernization; We see the use of Sustainable Aviation Fuel (#SAF) as the next step in achieving our sustainability goals #Aircargo is a vital sector of the industry, connecting all corners of the world. But, with this comes great responsibility to reduce the environmental impact of flying"—Dorothea von Boxberg CEO of Lufthansa Cargo (The interview with Jasmin Turner from Air Cargo Week).

5 Conclusion

The UN member countries took the obligation to fulfill the UN 17 Sustainable Development Goals among which the research topic mainly addresses the 12 and 14 goals according to which, the UN member countries should transform their economies from linear to circular. To achieve the latter, multi-stakeholder collaboration has an important role, and especially it is crucial to establish long-lasting cooperation among academia, the private sector, and the government. The online world fast-tracked digital purchases and opened the doors to international markets, creating both positive and negative outcomes for the environment. Pandemic resulted in increased food ordering and E-commerce activity, and thus countless cardboard boxes and polythene bags appeared in our streets and landfills. COVID19, limitations on mobility, intensification of ghost kitchens, and revenge shopping have greatly affected waste management. When the world is only 8.6% circular, one of the best solutions to implement the UN SDGs, especially SDG 12, lays in the transition from a linear to a circular economy and the collaboration among academia, the private sector, and the government, hence the qualitative research plays a significant role in this regard.

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Evaluation of Intrapreneurship in Business Innovation—an Analysis Between Scale-Ups and Big Corporations

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Abstract This chapter evaluates intrapreneurship as a method to drive business innovation in big corporations as well as in start-up, and scale-up businesses. In particular, the focus is about the implementation of intrapreneurship methods and their effectiveness. The lead research question "Does intrapreneurship make businesses more innovative?" is answered with the help of interdisciplinary literature analysis and qualitative research in form of structured expert interviews in the following chapter. The assumption that intrapreneurship helps businesses to be more innovative, keep up with competition, and even outperform them, is confirmed by the experts. Additionally, the most influential factors such as leadership and organizational structure, to make intrapreneurship and innovative environments flourish, are supported. Intrapreneurship is not only enhancing the success of the business, but also increases attractivity of the company for existing and potential talents. Innovation is constantly happening, even without the companies' awareness. Hence, why intrapreneurship can be used as an effective method to foster innovation from within and integrate it into the culture, so it flourishes more naturally. Leadership and management are facing challenges they must overcome, creating an outstanding innovative environment.

1 Introduction

Almost 88% of the companies listed in Fortune 500 in the year of 1955 are no longer existing in 2014. This happens due to constant innovation and creative destruction in industries. Most of the existing companies today will most likely be replaced by new industries or drivers that follow the dynamism of the economy (Perry, 2015).

Intrapreneurship is a method to encourage people within a company to be independent, think, and act creatively, and lead the company to innovation and growth. Corporate entrepreneurship enables people with creative problem solving (Kenton, 2021). Many times, people think of entrepreneurship as strictly linked to start-ups,

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while it rather should be seen as the act of value creation in different areas, such as new products, services, or business processes, for instance.

MIT Professor Eric von Hippel explains why companies should care about implementing intrapreneurship based on the innovator's dilemma with a case of a mechanical watchmaker being disrupted by an electronic watch company that does not depend on any of those mechanical resources.

Instead of going on with the same business model, the watchmaker company could set up a small department that focuses on building electronic or even smart watches, which can be scaled up when the situation becomes more threatening.

Companies get too caught up in their daily business, so they do not realize disruptive innovations coming up that can make their existing business model redundant and therefore, do not necessarily do anything about it (Somers, 2018).

The case of camera manufacturer Kodak shows how essential it is for companies to continuously innovate, disrupt their business model, and think out of the box. Kodak had the opportunity: one of their own people, Steve Sasson, created the first digital camera but the management did not realize the necessity and "put the idea back into a closet" (Pachal, 2012). In this case, someone else made this disruptive product, a digital camera, come to life and as a result, Kodak's business model became unprofitable. The company's innovation lead was gone, just because they missed out on a major trend in their industry.

2 Theoretical Groundwork on Innovation & Intrapreneurship

Business innovation is described as the implementation of ideas, new processes, services, or products to improve the net income of the company. This can be achieved by launching new products or services to increase revenue or to introduce lean processes that are more efficient or solve current business issues to cut down costs.

A company's business innovation process should always result in a competitive advantage, help with growth, as well as fulfil strategic objectives (Pratt, 2018).

2.1 Status-Quo

The topic of business innovation in big corporations, in general, is commonly known but still, many companies struggle to innovate. According to a study conducted by Innovation Leader, an online resource for corporate innovation, teams, politics, turf wars and lack of alignment are the biggest obstacles to pursue innovative ideas within a company. When business units are working innovatively (or think they are), they adorn themselves more about the image it creates and start seeing every entrepreneurial initiative as a competition about recognition or resources. Another

issue is culture which is based on operational excellence and predictable growth. Innovative change-makers, that are likely to attack stable business strategies, may not always be welcomed. In addition to the already stated reasons and the lack of budget to properly execute innovation, the inability to act on signals crucial for the future of the business is another big implication (Kirsner, 2018).

Corporate entrepreneurship, also called intrapreneurship, is a new model for innovation in established companies. Intrapreneurship means acting like an entrepreneur within a corporation. "An intrapreneur is a person who takes direct responsibility for turning an idea into a new product or service. An intrapreneur brings entrepreneurial thinking and skills to build within the structure of an existing organization" (Cambridge Dictionary, n.d.).

2.2 Establishing an Innovative Environment

Moreover, leaders must be bold thinkers as they play the primary role in fostering innovative environments across the organization top-down. "In today's world, innovation is the new leadership" (Cashman, 2013). Therefore, the success in creating innovative environments is dependent on leaders. They must nourish the entrepreneurial mindset in every person, so they feel comfortable engaging with intrapreneurship projects.

Corporate entrepreneurship includes people who are willing to drive change and are, therefore, assigned to specific projects on new ideas they either developed themselves or were open to simply engage in projects that demand flexibility, creativity, and out-of-the-box thinking. Intrapreneurs are instructed to work on the project just as a founder would approach the problem and come to an appropriate solution. The company will at the same time provide all resources and budget and support the team in creating new products or services.

According to a study by Corbett (2018) at Harvard Business Review, people are the most valuable innovation asset for companies.

This view comes into effect with intrapreneurship programs but is mostly limited to concentrating on exceptional heroes. Leaders should rather focus on spreading the innovative and entrepreneurial mindset throughout the workforce and every single person. Companies need to realize that hiring a few innovative people or establishing an only centralized innovation department will not change this perception (Corbett, 2018).

Additionally, intrapreneurs grow the bottom line and create a behaviour more than desirable for companies whilst pursuing projects with an inside-out perspective and leverage corporate resources to the most efficient extent. The time-to-market is reduced to the absolute minimum as intrapreneurs orientate on the (lean) start-up methodology, prototype, present minimum viable products (MVP), and mainly focus on the core to avoid unlucky situations, where other competitors get ahead (Kolev et al., 2015).

2.3 Organizational Structure for Innovation

Another significant factor for the success of corporate innovation is where to properly position it inside of the organization. Regardless of size, industry, or even culture, the structure plays an essential role to successfully innovate. There are three main types of structuring innovation inside the company: a centralized, decentralized, or hybrid innovation structure (Toma, 2019).

In the centralized approach, innovation strategies and resources are centralized in one innovation department and separate from the business units. This makes it easier to manage and measure innovation and is suitable for companies where all business units have the same innovation needs. The downside is the not-invented-here syndrome, meaning that a distinct department that might not hold the full understanding of problems and customers creates the innovation which leads to low adoption of ideas in the business units (BU).

In a decentralized structure, each business unit has its innovation resources, and therefore, full control of the efforts undertaken. As tasks and responsibilities are uniformly distributed between people, open communication and collaboration are promoted. Resources are allocated fast and innovative ideas implemented with less friction. The business unit-driven approach makes it more difficult to keep an overview of all ideas and the alignment of them with the overall company goals.

The hybrid structure is BU-enabled and operates as a combination of both, functional and divisional, structures. It allows more flexibility in assigning roles and leads to a less conflictual relationship across business units. Here, the corporate strategy is linked better to each innovation strategy. The biggest contra is that the line of authority might become vague, and deadlines are not made which can lead to issues on many other levels (Toma, 2019).

2.4 Intrapreneurship in Business Innovation

To introduce intrapreneurship as a business innovation method in practice, the theoretical approach was manifested with a conduction of interviews with industry leaders and experts in entrepreneurship within established companies.

3 Data Collection

As a base, the underlying theory explains in detail why innovation is necessary and how intrapreneurship can be an effective tool to achieve innovation in-house. Enriching the answer to this question, specific knowledge from experts in the field of intrapreneurship and innovation has been collected. Therefore, the author decided on conducting structured interviews with experts from the respective fields.

From a methodological viewpoint, expert interviews are classified as a qualitative research method. In qualitative content analysis, material of communication is analysed which can reach from text over pictures to audio. In the underlying research, this analysed content of the communication is retrieved out of audio from oral expert interviews. This content analysis methodology follows specific rules and is, therefore, an appropriate systematic method to create an analysis that is understandable for third parties (Mayring, 2015).

3.1 Variables

To get the best possible results intrapreneurship and innovation managers as well as intrapreneurs themselves from different industries and company sizes were contacted and interviewed. Therewith, the representativeness of the study results was ensured, and a broad sentiment could be collected. The variables defined are visible throughout the different levels of expertise of the interview partners, as well as their industry and personal backgrounds.

3.2 Statistics

When reading about innovation in companies, we conclude that 88% of Fortune 500 companies of 1955 are no longer existing in 2014 (Perry, 2015). Furthermore, nine out of ten start-ups fail with their ideas. This is because entrepreneurs are more risk-averse but most of times also too optimistic about the success of their business (Krommenhoeck, 2018).

Also, in a study of Guidant Financial the top reason for someone to create their own business was to become their own boss and have freedom (55%), followed by pursuing one's passion (39%). Two of the three biggest challenges small businesses face are lack of capital and recruiting, or keeping suitable talent. For larger corporations this can become a competitive advantage (Guidant Financial, 2021). Intrapreneurship combines the best of both worlds while giving people the opportunity to pursue their passion and be free to create something, while at the same time having the financial resources and not taking the same risk as founding an own company.

4 Case Studies

Two case studies have been conducted specifically to ensure a proper comparison between two different approaches of a more thriving company in comparison to an established cooperation. The companies inspected are SumUp and 3M.

4.1 SumUp's Start-Up Culture as an Established Company

The way of working is based on three main tiers: agile, safe to fail, and tribal. The agile approach to working at SumUp is iterative and incremental and reduces bureaucracy and hierarchy. To increase agility throughout the company the organizational structure of SumUp categorizes the company's mission and assigns significant projects in tribes under the missions, which then are divided into different autonomous squads that take over specific tasks.

The culture of failure within SumUp exists since the early days, it belongs to the founder's mentality. It is even requested to take risks and fail, as failure is seen as an opportunity to grow and not treated as a taboo, which no one talks about (SumUp, n.d.).

As an engineering company, SumUp's mission is to create innovation from within, ideally bottom-up from individual autonomous teams. In the best-case scenario talent is hired, equipped with tools and resources, and empowered to work towards the vision and mission. Additionally, a specific mindset and common cultural framework are needed to pursue this approach. Autonomy on the one hand, but an entrepreneurial DNA on the other hand, both need to be represented in every team as a common base (Klein, 2020). The founders, current CEO Daniel Klein, and CFO Marc-Alexander Christ, almost naturally pass their mindsets on to the people. Entrepreneurship, with all its characteristics, is truly lived by the management.

Most people working at SumUp automatically adapt this mindset eventually as they want to have an impact and follow their passion. SumUp, as a striving scale-up, soon realized that innovation and taking ideas on a real project level is hard without a scalable program (Stella, 2020).

"On such a platform, teams should be able to self-organize, and ideally also self-manage, and self-motivate to create something new with passion" (Klein, 2020). The objective of this so-called Bets Framework is to create a seamless and transparent process to kick-off and monitor big projects, called bets. Everyone at SumUp can and is highly encouraged to take part and contribute ideas to the bets board, where all bets are gathered for further evaluation.

The ultimate big picture should be to make ourselves redundant. Even though this sounds contradictory, everyone should strive to coach and develop others inside or outside the organization to be able to take over their job. Only if this is possible, people have the time and headspace to concentrate on innovation and creating new ideas as a bet. "If somebody is busy 100 percent of the time and their job is super important, and the entire team he or she works in is dependent on that person, how are we going to allow them to work on a bet?" (Klein, 2020).

The Speed Lane Model is applied with the Bets Framework while bets are seen as parallelized speedboats. These speedboats are projects that try to prove a hypothesis of growth opportunity and need significant investment. The categories in which bets are distinguished and classified are market expansion, product development, service expansion, new sales channels, as well as sales and marketing strategies.

All ideas coming through the Bets Framework are reviewed, discussed, and evaluated by the extended core team which consists of all c-level executives and some additional founding members of the framework as well as other internal advisors. After each revision meeting the best ideas will get the investment and can start pursuing the project with a small start-up-like team inside the organization (Klein, 2020).

Whenever a bet gets approved the team starts working on it and is not supervised closely in the beginning. When the pace starts to pick up all bets are monitored and measured quarterly to mature the idea as quickly as possible, and updates are being communicated throughout the wider teams and company.

Once a bet reaches bigger scales, the updates and measurements become part of the company-wide objectives and key results. When bets become as mature and established as other tribes, they are localized in the general mission, tribal, and squad structure. Depending on the goal and size, bets are organized as either part of a bigger existing mission or as independent missions, if necessary. The superior view is to perceive all bets as small start-ups within SumUp's missionary organization (Klein, 2020).

However, as in every innovative project, the first iterations of a model are never perfect. This also applies to SumUps Bet Framework, its insufficient methodology and missing or wrong assessment of bets, and therefore insufficient allocation of resources since the introduction of the program.

Bets should be solely strategic ideas focused on long-term goal and not on short-term success. Anyhow, this model suits a scale-up culture very well and allows the company to keep up with innovation in the industry and possible disruption.

4.2 3M's Innovative Philosophy as a Role Model for Corporates

3M and its unique corporate innovation philosophy are discussed in the following subchapter. They were the pioneers in introducing the 15% time and are living innovation in many ways from the beginning, and like no other company. 3M started their business with something, that failed before they even started. On that day, the founders did not give up which was the moment when the unique 3M innovation spirit was born and still lives up to this day.

What drives the company and people working at 3M is their mission to improve everyone's life with their technology and scientific products. The strengths are their technology, manufacturing system, global capacities, their whole workforce, and its stable foundation which has proven itself in the past century. They believe that no one can succeed alone but rather that everyone should work together. It is 3M's priority too, to focus on long-term goals rather than short-term success. It is about continuous improvement and growth, including constant portfolio checks, innovation, and focusing on the own people (3M, n.d.).

In the year 1977, the Challenge '81 was founded. This program had the goal to create products with a significant impact. They wanted to achieve a 25% share of the company's sales from products that were invented in the past five years. The challenge was remarkably successful. It even improved from the main goal to 30% of all sales with products that are on the market for less than four years by the 1990s (3M, 2002).

Today, the New Product Vitality Index (NPVI) for products that are younger than five years is 35% (3M, 2019). After the challenge, a dedicated Innovation Task Force with 16 members was formed to analyse the level of innovation inside of the company and check the mood among the people. For this task force, Gifford Pinchot, founding father of the term intrapreneurship, was hired to accompany them in a four-month innovation audit. The result of this audit was enlightening: intrapreneurs want freedom and recognition to stay creative and motivated. Though, innovation is messy and prone to failure: 60% of new products fail already in the early stage before they can be launched. Therefore, leaders must never punish people for failure in corporate entrepreneurship and innovation. The perfect combination of personal recognition and financial support are, what makes intrapreneurs happy and striving.

William McKnight, who started at 3M as a bookkeeper and made his way up to chairman of the board, was one of the people who had the biggest impact on the culture of innovation at 3M. While he argued for the 15% rule McKnight's words wrote history: "Encourage experimental doodling. If you put fences around people, you get sheep. Give people the room they need". Because in the moment people are free, their creativity increases, and they are more likely to look for unexpected opportunities as well as breakthrough inventions (Govindarajan & Srinivas, 2013). Afterward, people were given these 15% of their work week to research and ideate on relevant topics that seem promising for the company's success (3M, 2019).

The most significant factor of the 15% rule is that it is not measured. People are allowed to spend 15% of their time per week on anything they like which eventually will contribute to making the company more successful. Still, expectations and goals must be communicated clearly, and regularly. Miscommunication and a lack of stakeholder management lead to implications that can easily be prevented.

Overall, after a century of innovation and entrepreneurial spirit in a big corporation like 3M, it can be said that intrapreneurship proved as a very effective method in business innovation, if not too many borders are put around it (Stricker, 2020).

5 Data Evaluation & Interpretation

Innovation is inevitable for companies to stay relevant. Without innovation start-ups, or other companies, will continue to disrupt existing business models and make the affected company redundant. The importance of innovation and disruption is clear for most companies, but they still struggle with how to do deal with innovation and how to creating the fertile soil where creativity and innovation can grow to the optimum.

It is not only about creating an entrepreneurial mindset that is clear leadership matter but also maintaining this spirit. Entrepreneurial leaders should continuously remind the people about their values, ethics, and their unique culture. It is about empowering people and finding the right way to do it—a good mixture between control and freedom for creativity.

This, besides individual company-related culture, should consist of a culture of sharing and supporting ideas and always giving people the freedom to follow their ideas (Hoffmann, 2020; Stricker, 2020). Entrepreneurial mentality develops in people when they are given freedom. Most of the time, this is not something being taught in a structured seminar but rather passed on even unintentionally. The best lessons are when people adopt this entrepreneurial mindset from each other and are inspired to become entrepreneurs themselves. Even if someone realizes that is not who they are or want to be, it is best to openly communicate it and change directions. It is all about adaptability, flexibility, and willingness (Klein, 2020).

Introducing an abstract methodology of being an entrepreneur within a company is nothing but another change process. It is about openly communicating the need for such a culture and finding the right people to support it. Following a specific action plan to fully establish an intrapreneurship program and generating quick wins are the next steps. With these results, the growth of the program can be achieved and scaled. Eventually, most people will be on board when they feel recognized and supported by their management and co-workers.

For innovation to thrive properly, the organization should be set up in a hybrid structure. The combination of functional and divisional organizations makes it possible to have a global research department but also have individual research and innovation labs in each business unit. That way there is no hazard of the not-invented-here syndrome. The implementation of invented products in the respective function or division is much more likely to be accepted when the own people had the opportunity to contribute, and developments were communicated regularly and openly (Mönch, 2020).

At SumUp, the structure is similar: organized in tribes and squads around the company's missions. These organizational structures allow for innovation and entrepreneurial spirit to flourish the best. Although both companies additionally stress that everyone should be an innovator and entrepreneur (Klein, 2020; Stella, 2020; Stricker, 2020), a good structure cannot win over bad leadership, and vice versa. Leaders need to create a space for innovators within the company that is distinct from their original workplace. An intrapreneur needs to get out of his usual daily business to get into the bird's perspective. Furthermore, intrapreneurship should not be seen as a program with an end, but rather take an infinite part in the organization. Therefore, the positioning of intrapreneurship is critical for future developments (Hutter, 2020; Stumpf, 2020). When looking into the future, according to Klein, intrapreneurship programs can be the accelerator for companies to reach their mission. "Organizations need that self-inventing drive, where you keep having innovation from within", and this is the goal for long-term and sustainable success (Klein, 2020).

With increased focus of people to search for purpose and passion in their work, it will be more necessary than ever for leaders to create, and truly live a culture

of entrepreneurship in their companies. This should be seen as a big opportunity of employer branding for existing people but also to attract great new talent with exactly this purpose: self-fulfilment, passion, and creativity (Stumpf, 2020).

6 Conclusion and Outlook

Sparking the inner entrepreneur in people has manifold proven as a highly effective practice. Freedom, support, and responsibility fuel the creativity in people's minds thus, motivate them to gladly spend time and thought on driving the company's mission. Top management needs to provide full support in eliminating worries about what happens if people fail, make mistakes, or spend time on creative ideation instead of their daily job.

The biggest difference between intrapreneurship in scale-ups compared to big corporations is, that big corporations have a hard time manifesting the entrepreneurial mindset and action throughout the whole company. Due to their organizational structure, traditional management and leadership thinking, change processes like this take longer and bear complications such as resistance and anxiety among people.

There is not a one-size-fits-all solution to intrapreneurship. Some implement an infinite culture of spending a specific percentage of their time on projects they are passionate about. Others set up programs like intrapreneurship batches over a couple of months and select winning projects. Again, others create an unlimited framework for everyone to hand-in ideas they came up with, collect investment, and develop products that eventually contribute to the overall company revenue. It is rather mindset, characteristics of people, maximizing their creativity by providing individual ideal work environments and identifying how well the framework fits into the company's organizational structure.

When only looking at the innovative power and disruptiveness of business models, without doubt, start-ups will outperform big corporations. Almost no big corporation, except perhaps very innovative ones like 3M, have the grits, possibilities, and resources to pursue such great-scale innovations. That is also not what intrapreneurship is about. There will always be new and young start-ups but only around ten percent will survive eventually (Krommenhoeck, 2018). The main difference and winning factor for start-ups is speed. Start-ups and scale-ups in general have smaller teams, shorter decision processes, and overall, fewer dependencies. Therefore, they can pivot their business models in times of crisis much easier and faster than big corporations could ever do. This does not mean that large corporations cannot compete. They can, but not with the same speed and cost effectiveness. Corporate entrepreneurship will perhaps make up ten percent of innovations in general, compared to innovations coming from start-ups.

A very likely possibility for the future development of intrapreneurship is, for start-ups to collaborate more with corporations. The implicit aim when a company acquires a start-up is to make use of its innovative technology or product, and the start-up needs the bigger party to scale its business model. These intentions are

mainly egoistic and lead to dissatisfaction on both sides until either party decides to quit. Therefore, it would be better if they would concentrate on creating a common space where both do not need to fully commit to becoming one, but can still profit from and help each other. Another option can be to intensify the coopetition in the areas of innovation and entrepreneurship. A regular and large-scale exchange for corporations to share their experiences in a forum would help everyone to improve their initiatives.

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Adapter.ge How We Digitalized Local Businesses During Pandemic

Mamuka Ghaghanidze

1 Introduction

Digital Area is the tech/innovative business unit of Bank of Georgia Group. In 2021 Digital Area manages three online companies:

1. Extra.ge—Georgia's largest e-commerce (B2C) website
2. Optimo.ge—Locally developed ERP system for small and medium-sized businesses
3. Area.ge—Modern real estate online platform

In addition to this Digital Area also has a stake in dozen local tech startups and innovative projects. The mantra of the company is to create a healthy technological ecosystem and help local companies to do their daily business operations with more ease.

Due to Covid-19, the pandemic situation deteriorated in Georgia in March 2020. The first lockdown was issued from 15th April to 25th April (GardaWorld, 2020). Under the lockdown terms, most of the brick-and-mortar businesses were told to stop their commercial activities. Small, medium, and large retailers had to close their business venues and wait until restrictions were released. An exemption was made for food producers/retailers and online retailers. Even though online retailers were allowed to continue the economic activity, reality showed that the majority of businesses were not prepared for online transformation. As of January 1, 2020, active Georgian businesses (pp. 15–16):

1. 94% Have access to the internet
2. 36.4% Use social media
3. 18.4% Use a webpage

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4. 3.3% Have online shopping service

Based on these figures it is easily understandable that the digital presence of Georgian businesses is not favorable. It is crucial to understand the difference between having a webpage on one hand and having an online shopping service on the other hand. In a nutshell, an online shopping service requires an inventory management system, multiple online payment methods, clean and sleek website, and fast and secure logistics and distribution network. Not only majority of local businesses do not have all four components, but they are also not even efficient at a single one.

On the consumer side, restrictions pushed the population to use online services more frequently. Thus, demand from customers on various products was rising and online retailers had to focus on new challenges and opportunities. The main problem for online retailers, in the beginning, was to increase their offerings. This meant that big online retailers such as extra.ge had to increase their portfolio of partner businesses, so-called Merchants. The share of local e-commerce doubled from 11% in 2018 to 23% in 2020 (pp. 4–5) as online retailers were pushed to increase their offerings.

As the leading tech and innovation company Digital Area decided to make a strategic move by utilizing two of its digital assets: Extra.ge and Optimo.ge.

2 Extra.ge

Extra.ge is the largest online e-commerce platform in Georgia, which creates new sales opportunities for partner companies, helps them to go online, and connects them with a large customer base. Extra unites: 450,000 unique visitors per month, 550+ shops and 65,000+ products Fig. 1, both web and App-based online shopping experience (Extra.ge, 2021).

Extra has its warehouse and logistics team and delivers goods throughout Georgia. In addition, the platform offers multiple payment methods such as:

- Credit Card Payment
- Cash on Delivery
- Bank Instalments
- Extra.ge wallet
- Plus points

The company has outstanding customer care, a continuously evolving webpage, an advanced customer support center, and flexible integration options for merchants. For more details, please visit the website https://extra.ge/.

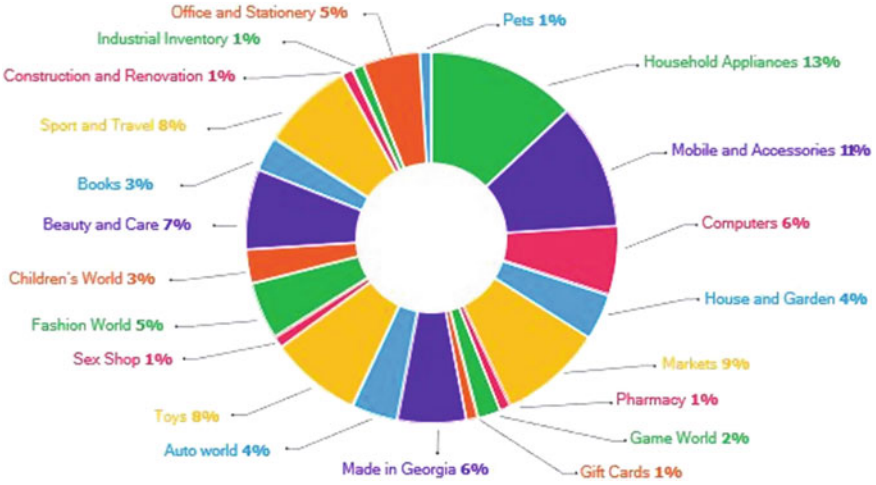

Fig. 1 Extra.ge categories

3 Optimo.ge

Optimo is a modern digital business tool for daily operations. With the use of Optimo, it is easy to control inventory, account for daily transactions, create useful statistical and analytical data, and sync operations with revenue services. Optimo can be used both physically and online.

Physically businesses can install scanning devices coupled with POS terminals Fig. 2. Online businesses can have a dedicated dashboard with their unique login credentials (Optimo, 2021). For more information, please visit https://optimo.ge/.

4 Adapter.ge

Coupling resources and expertise of those two companies, Digital Area launched a new online project Adapter.ge https://adapter.ge/ right after the first lockdown was issued. The main goal of the project was to help local brick-and-mortar retailers to become digitalized and continue their economic activity. Adapter.ge was a one-stop destination for local businesses, that offered three vital components for online retail (Adapter, 2021):

1. Online sales channel extra.ge
2. Sales and inventory management system Optimo.ge
3. Distribution and logistics operations

The synergy that was created within this project was smart and strategically wise at the same time. On one hand, we had extra.ge already developed and well-known

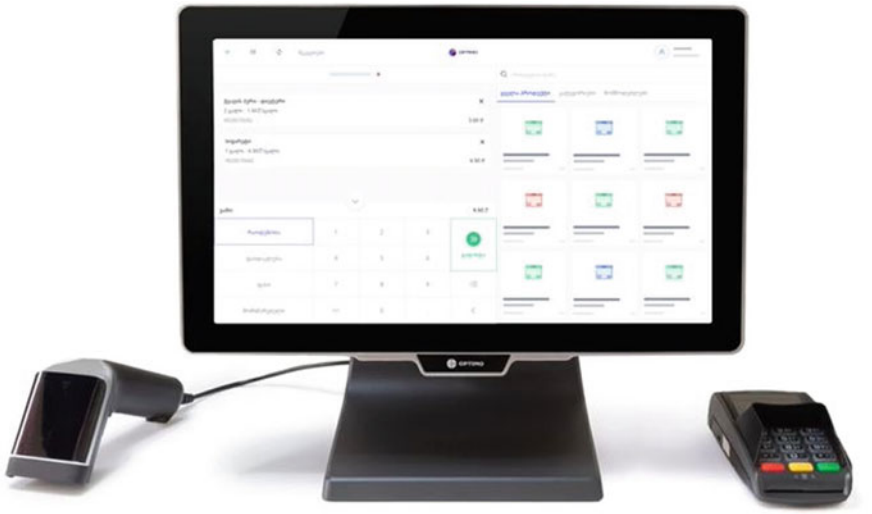

Fig. 2 Optimo device

local e-commerce platform, on the other hand, there was Optimo.ge a modern digital inventory management tool. Adapter.ge enabled a lot of local businesses to resume their operations and find certain relief. It is important to note that at this stage both extra.ge and Optimo.ge as companies were young local startups and both required an influx of new clients/partners. Commercially Optimo.ge was gaining from every new local business that signed up for the project from subscription fee. Extra.ge on the other hand was increasing the number of its partner companies, which meant increasing the number of its offerings, which as I already mentioned was one of the main obstacles for local e-commerce retailers during the pandemic. As standard Extra was taking a comission from every sold item on its platform.

To facilitate and engage local businesses, the on-boarding process was made as simple as possible Fig. 3.

5 Research Results

In 2020 from April to December, 280 local businesses were registered. It is important to mention that the harshest pandemic restrictions were imposed during this period. In 2021, from January to the end of July 97 new businesses were registered. The decrease in 2021 is explainable as starting from the first quarter restrictions were released and retailers were able to resume their normal business activity. Newly registered businesses provided and expanded extra.ge's portfolio in various categories, such as Food and beverage, sports equipment, electronics, handmade products, child products, furniture, toys, lighting, garden, health and beauty, musical equipment,

Fig. 3 Adapter.ge on-boarding process

wine and spirits, industrial equipment, pet world, and many more. According to extra.ge in-house data the increase was immediate in 2020 Q2 reaching its peak in 2021 Q1 Fig. 4.

The strategic positive outcome for extra.ge and Optimo.ge was following. As more and more companies were getting acquainted with the Optimo system, a lot of businesses decided to advance and acquire Optimo's physical device for their physical stores or warehouses. This meant that Optimo was getting new monthly payers for its physical device package, additional monthly income. Extra.ge, as already mentioned was taking a percentage from every single transaction, plus it was getting positive word of mouth advertising and, was acquiring new partners with a lot of ease.

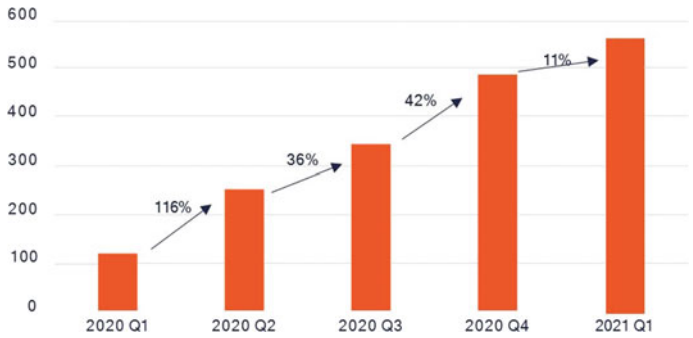

Fig. 4 Extra.ge number of partner companies (Extra.ge, 2021)

6 Main Obstacles and Hurdles

The launch of the Adapter.ge was like an opening of an air tap for local businesses. Thus, as numbers suggest instant response from the business side was positive. However, one must understand that most of these businesses never had an encounter with online trading and a huge effort was made into the learning process. We had to teach nearly every new business how to operate, how to be responsible, and keep the whole process efficient. Online trading requires certain assignment of responsibilities. The number one requirement on the business side is to monitor and update inventory regularly. Although all of the Adapter.ge companies had an inventory management system, only a selected few followed the process and kept their inventory levels updated. Because of this specific issue, extra.ge had quite a big reputational damage as a lot of out-of-stock transactions took place. For end customers, it is irrelevant who provides which product, whenever an issue arises, they start to attack the platform, in our case extra.ge. To avoid this reputational damage, extra.ge, and Optimo.ge started monitoring inventory levels every week. This meant that every merchant was responsible for providing an inventory update once a week. This enabled to minimize reputational damage but did not eradicate the problem in total.

The mindset of the business owner is the second biggest obstacle. The share of online shoppers in Georgia is 17% of the total population, much lower compared to regional and EU countries (pp. 3–5). This means that there is a huge growth opportunity, but this opportunity can only be capitalized, only if business owners start to take online shopping seriously. When the first lockdown was released, the majority of Adapter.ge companies moved back to their traditional physical sales process and gave up on online shopping. It was hard to convince them to stay focused as the pandemic situation could deteriorate again and new lockdowns might have been imposed. When the second lockdown was imposed, companies came back and this time they took their responsibilities seriously. Slowly but methodically, we were able to change the mindset of couple dozen business owners to not give up on online shopping and think about the long-term perspective.

On the operational side, we had issues with inventory classification, quality photo material, and logistics operations. For online shopping, it is important to have each item with a unique SKU code. Part of the businesses that came via the Adapter project, were new to this practice and did not have any SKU codes. So, we had to teach them how to classify and account for their inventory.

The second problem was photo material. Without good photo content and product description, products will never sell online. Most of the businesses did not have photo banks, so we had to send our photographers and organize a quick photoshoot. Whenever photoshoot was required, it slowed down the on-boarding process. We had to wait a couple of extra days or sometimes weeks to receive ready photo material from the photographer.

Extra.ge operates by the merchant dashboard principle. This means that extra initially does not keep inventories at its warehouse. When a new order is registered on the website, we communicate with a specific merchant, ask them to confirm the

item that is within this order and after that, we arrive at the merchants' location pick up the product and deliver it to the end customer. One of the main promises of extra.ge to its customers is to deliver the order in the fastest and most efficient way. This means that once the courier arrives at the merchants' location, the order must be ready for pick up. However, due to irresponsibility and lack of management skills, many merchants kept our couriers waiting thus, hindering the overall delivery process.

Sales peaked from mid-November as the majority of customers started preparing for Christmas and new years eve. During this period the pressure on online retailers was high. We quickly realized that our existing capacities were insufficient and started an immediate increase. Even though a huge effort was put in to satisfy the demand, still couple dozen clients were left without their orders for Christmas and new years eve. We were unable to anticipate how large will be the demand on e-commerce during this period and mistakes were made.

According to the Galt and Taggart e-commerce report key features required for e-commerce platforms in developing countries, to advance are listed below (pp. 13–14). Let us analyze each feature and point out how they are translated in real-world scenarios.

- Full catalog of products and prices—While it is online retailers' responsibility to list all products clearly and understandably together with pricing, without the input provided from the business regarding full assortment, pricing, discounts it is hard for an online retailer to be clear and adequate
- Detailed product descriptions—As practice showed business owners sometimes do not have full and in-depth knowledge about their products. In these situations, online retailers make a step forward and try to get needed information from other similar websites, publications, product catalogs, producers' official websites, etc. A full in-depth description is crucial for online sales
- Product return and refund possibilities—This aspect is very crucial for an online business to strive. Extra.ge works closely with its merchants especially electronics providers to have a clear and efficient refund policy. As of now when customers receive orders, if they have complaints, they have to contact the customer center and issues are resolved within 1 or 2 days
- Up to date information about the availability of products—Starting from January 2021, extra.ge has significantly lowered out-of-stock case scenarios. This was achieved with intensive negotiations with merchants and regular inventory check-ups. Merchants and particularly business owners receive a monthly report on their inventory performance. Merchants that have a high percentage rate (more than 20%) of the out-of-stock case are penalized
- Delivery services in all geographical areas—compared to other e-commerce retailers that only deliver to major cities within the country. Extra.ge together with its in-house logistics team and partner courier companies delivers throughout the country. Even in the most rural villages products are delivered within working days

- Clean navigation menu, search and filtering tools—September 2021, extra.ge was launched with a new design. Re-design significantly improved the overall user experience. The webpage search bar is now more efficient and is synched directly to Google search results. Filtering tools have been re-designed for all categories
- Personalized recommendations—Extra.ge actively utilizes digital advertising tools, which means that individual customers receive offerings based on their past route on the webpage
- Consumer reviews module—As of now all, consumer reviews are directed on the official Facebook page of the company. But we realize that it is important to have live/actual product reviews on the webpage. Therefore, in the upcoming development phase, this option is on the way
- Customer support module/live chat for instant communication—Customers can reach extra.ge via instant chat button, dedicated call line, or e-mail
- Multiple payment methods—Extra.ge periodically conducts customer surveys. One of the domains for which the company is always receiving positive feedback is the check-out page and the availability of multiple payment methods
- Product comparison option—If a specific product is provided by two or three different merchants, customers can compare prices and select the best offering for their needs
- Tracking option for delivery—Every user on extra.ge has its profile. When customers make an order, they can check order tracking information on their profile. Information is updated at every stage of the process. For example, the customer is notified when: Order is received, actual product qty is checked at merchants' warehouse, products are reserved, products are picked up and brought to sorting facility, the order is being prepared and order is dispatched to the final destination (Extra.ge, 2021)
- High-quality photo/video visualizations—As mentioned earlier photo content is crucial for online shopping. In certain cases, merchants can provide extra.ge with quality photo material. In cases when it is not possible extra.ge utilizes its in-house photographer or uses the internet for photo sourcing

7 Conclusions

2020 was an intensive learning curve. Both for e-commerce companies and business owners. The long-term forecast suggests that the e-commerce market will increase in the upcoming years. In 2020, Georgian e-commerce expenditure was estimated at GEL 597mln (pp. 4–6). A large portion of this ¾ is grabbed by international retailers and the average annual spending per user is 950GEL (pp. 4–6). With the advance of local e-commerce retailers, an increase of trust from customers, local e-commerce will continue to grow to grab more than half of total spending by 2025 (pp. 5–6).

Without any doubt Adapter.ge, and Digital Area, in general, will play a major role in this shift and become one of the key players. Extra.ge is already the leader in its segment in terms of total visits. It has recently launched a new webpage re-design

campaign, offering a more modern and sleek online shopping experience. Internet access in urban areas is 91% and 74% in rural areas (pp. 14–15). The majority of orders come from big cities. Regional orders are also prevalent, but there is still big room to improve in that direction. As trust and delivery speed increase, rural areas will become more active in online shopping. Another interesting fact is that Georgia has a relatively youthful population compared to EU countries. The majority of the population is within the age range of 30–59, which is the most active age segment in online shopping.

Another possibility for future growth in cross-border selling. As of now, Georgia ranks 119 out of 160 countries by Logistics Performance Index (LPI) (pp. 18–19). Even domestically logistic performance has a big room to grow. Currently extra.ge delivers orders in the capital city in 2 days and regional orders in 5 days. Improvement of logistics performance will increase trust among customers and increase the average spend per customer.

Galt and Taggart estimates that the e-commerce penetration rate will reach 4.7% by 2025, compared to 1.1% in 2020. Consumer behavior has already shifted, and this change will continue. Total online retail spending is expected to grow to GEL 2.2bn over the 2020–2025 period. The fastest-growing categories will be the Fashion and beauty sector, electronics and appliances, and grocery.

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The Challenges of Digital Leadership—a Critical Analysis in Times of Disruptive Changes

Ines El Akid

Abstract The following paper deals with the challenges of digital leadership in times of disruptive changes, using the example of the current crisis, the Covid-19 pandemic. The research objective is to examine most important challenges of digital leadership by focusing on changes that have emerged through Covid-19, and to show leaders solutions how they could efficiently overcome the challenging times. The topic of digital leadership is more important and more present nowadays than ever. Companies and employees are experiencing a change in a new way of work. It is not that the trend towards remote work did not exist before, but the pandemic led to major consequences that have accelerated this process. In addition to a literature-based study of the topic, an empirical study was carried out. Seven experts from different industries and backgrounds were asked about the subject in a semi-structured interview. Above all, it stood out leaders especially place value on social skills and self-competences, as for instance: empathy, conflict management, self-reflection, transdisciplinary, openness to innovation and change, resilience and being communicative. Distinctly those competences help them in times of crisis to better respond to the needs and concerns of their employees.

1 Introduction

The topic digital leadership has gained more attention at latest since the outbreak of the virus SARS-CoV-2, also known as Covid-19 or Corona. Buzzwords as remote/flexible work and home office have become familiar and are nowadays used on a daily base.[1] Society has experienced various changes that not only affects their private lives but also daily routine at work. These changes have led to shifts/transformations in collaboration for individual persons, teams, companies,

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[1] The examination always focus on leading employees, respectively on the management of virtual teams. The following content does not refer to “corporate management”.

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industries, and even whole government systems. Thus, strategies need to be adapted or even have been changed (Jacobides & Reeves, 2020, n.p.). Moreover, traditional teams[2] necessarily need to learn how to function as a virtual group and how to collaborate digitally in an efficient way. Even though managing virtual teams is not a new form of leadership, it is still related to constant changing facets, obstacles, challenges as well as digital competences leaders need to face (Sheninger, 2019, p. 22).

Another important component is technology. One look at our daily working life, it stands out that IT is not a "cost center" anymore but works more as a "strategic enabler" (Brett, 2019, p. 13). Employees need to face complex tools and programs than they ever needed in comparison to the other industrial revolutions that the world has gone through. These technologies have an impact on the requirements of an effective leadership by also bringing challenging changes to a whole organization (Smith, 2014).

While considering on one side this complexity of technology, and on the other side disruptive changes that happen due to the Corona pandemic, the big question is: how can an effective digital leadership look like in times of disruptive changes? To answer this question, it is of special importance not only to point out the challenges of today's leadership, but also to develop a deeper understanding of humans (Brett, 2019, p. 13).

2 Theory

Before analyzing the changes and the challenges that come along with Covid-19, the meaning of a digital leader and its differentiation to traditional leadership will be pointed out first, so readers have the same origin/idea of the object of examination.

2.1 Definition and Differentiation

Digital leadership means leading by using new methods and instruments for different fields within a team, i.e. for collaboration through social media/tools, for performance evaluation through online based mobile systems or for project management through already established methods as Scrum, or similar (van Dick et al., n.d., p. 3).

In comparison to traditional leadership, leading digitally is less hierarchy-oriented, but more "integrative", as leaders share more competences and knowledge through innovative ways of communication. They and their employees try to figure out as "one unit" best ways and solutions. Failing is not seen as a weakness, but more as a continuing learning process in order to reach success sooner or later (van Dick et al. n.d., p. 22).

[2] In the present work, the meaning of a traditional team refers to individuals working on-site together.

2.2 Changes and Challenges in Our Workplace due to Covid-19

The challenges of digital leadership are present due to the actual changes that come along with the global crisis. These changes particularly affect working conditions, development of employees as well as interpersonal relations, i.e. remote work changes communication within a team, trainings cannot easily be performed on-site and interpersonal relations get harmed by social distancing (Aternity, 2020, n.p.; Soni, 2020, n.p.; De Vos, 2020, n.p.).

Now, as theory shows there are three main resulting challenges that emerged.

2.3 Management of Virtual/Remote Teams

Managing virtual teams requires a deeper understanding of people, process, technology, and recognition that trust is more a limiting factor compared with face-to-face interactions (Serrat, 2017, p. 619). Due to the virtual communication style, teams are structured more informal than formal and employees need to be more self-managed. A leader cannot control every single step of her/his team members. Additionally, less and restrictive contact, less personal interactions, and fewer opportunities to develop and enhance relationships with colleagues, make it harder for leaders to establish as well as maintain a clear sense of group identity, communicate a (team's) vision, and to maximize synergies within the group. Another challenging fact is the emerge and development of new roles. Especially the information upon which role expectations will be established works differently and thus, has become more challenging than before the pandemic (Nydegger & Nydegger, 2008, p. 71).

2.4 Mental Health of Employees

Quarantine and isolation create a risk to mental and physical health, which can strongly affect one's productivity at work (Apfelbacher et al., 2020 p. 4; Kohll, 2018, n.p.). If employees are stressed or mentally not stable, their job performance, their engagement with the job and the communication in the team are affected negatively. In addition, physical capability suffers, therefore affected employees feel actual pain in their body and are less able to concentrate or function well through the usual workday (CDC, 2020, n.p.).

2.5 Organizational Cultural Changes

The fact that more people work remote makes it clearly harder to communicate and experience the culture of an organization. Organizational cultures may be even more negatively affected, if a culture is not "adaptive in real time", regardless of if a company has a very strong and strategically aligned implemented culture (Chatman & O'Reilly, 2016, n.p.). In this case, being cultural adaptive refers to an organization's capability to innovate as well as to be open minded for new things.

A study from Chatman et al. (2014, n.p.) shows that adaptive organizations earned 15% more in annual revenue compared to those in the same industry that were less adaptable. This means taking chances and continuing to cultivate organizational cultures is a key factor. It helps employees to stay focused during challenging times as well as it helps not to lose commitment and motivation (Chatman & Gino, 2020, n.p.).

3 A "VUCA" Environment and Possible Solutions

Considering these emerged changes and challenges, it is inevitable that organizational environment has not transformed as well. Leaders are surrounded by "VUCA-situations".

VUCA is an acronym which describes organizational situations or circumstances. It stands for: volatility, uncertainty, complexity and ambiguity (Whiteman, 1998, n.p., as cited in Bennett & Lemoine, 2014, p. 1). Regarding this model, circumstances can be described i.e. as volatile caused by complex, instable or unpredictable situations (Bennett & Lemoine, 2014, p. 3), or times are uncertain because of a lack of information. In complex or ambiguous situations, information is available, but it is too complex or incomplete/inaccurate, which makes it hard to understand fast (Bennett & Lemoine, 2014, pp. 3–5; Kraaijenbrink, 2018, n.p).

In times of volatility, uncertainty, complexity and ambiguity, leaders are not complete helpless. In theory, there are solutions that might be helpful to defeat such difficult times (Schrör, 2020, pp. 11–15). The author wants to present the following four ideas as they also refer to the actual Covid-19 crisis.

3.1 Agile Leadership

Agile leaders are capable to work and act quickly and flexibly in complex and dynamic environments. Innovative agile methods that are used today are i.e. Scrum, Design Thinking and Kanban (Franken & Franken, 2020, pp. 333–337). Another characteristic is giving more weight to individual competencies and team interaction

in extensive self-organization than to defined processes and structures in the hierarchy itself. It is also important to focus on the team's activities on the essentials for achieving team goals, above all on the daily, clearly regulated, direct communication and to free them from time-consuming hierarchy-related activities and forms of communication. Agile leaders must focus on meaning and vision, attitude, relationships, meta-perspective, employee personality as well as team dynamics (Schrör, 2020, pp. 11–15).

3.2 New Organizational Forms

In new forms of organizations typical patterns are not useful anymore due to new circumstances. Especially for leaders that hold on to former classic leadership ways and characteristics are affected then by uncertainty and anxiety to the new. One key success factor of leadership in challenging times refers to the ability to deal with such difficult emotions. The concept of "Spiral Dynamics" is one model that exists for situations as these and can be supportive for leaders. In this model Beck and Cowan (2007) emphasize the core idea of the evolution of companies along a development line determined by the further development of human consciousness. In recent years, the popularity in team-oriented organizational forms that work in a low-hierarchy atmosphere has confirmed this model (Schrör, 2020, pp. 11–15).

3.3 Self-leadership

Self-leadership is based on the concept of self- regulation, which comprises the conscious and compassionate perception of one's own feelings, and is particularly appropriate when new courses of action are developed in new situations or when it comes to consciously changing habits. These changing habits or also resources that enhances them to play an important role for intrinsic motivators. Unfortunately, an enhancement of even an "activation" of such intrinsic motivators are neglected in times of crisis, as difficult feelings unconsciously block an approach to behavior change and thus, makes it harder to get motivated by oneself (Greif & Kurtz, 1999, p. 39, as cited in Schrör, 2020, pp. 13–14).

3.4 Sense of Purpose in the Workplace

Studies show the degree of sense of purpose in the workplace is rediscovered as a success factor as more than 90% of companies with a well-defined purpose deliver growth and profits at or above the industry average. Furthermore, research found out "at companies that have clearly defined and communicated how they create value,

63% of employees say they're motivated, versus 31% at other companies; 65% say they're passionate about their work, versus 32% at other companies". This means, if there is a lack of sense of purpose in the job, workers feel lost. And over time, employees' motivation is negatively affected as well. They begin backing away from the challenges required to achieve the organization's communicated goals (PwC's Strategy Consulting Business, Strategy & 2019, n.p., as cited in Blount & Leinwand, 2019, n.p.). During a disruptive change, it is important for leaders to have a powerful, confident, motivating environment that is authentic and genuine because it is well anchored inside (Schrör, 2020, p. 26).

4 Research Method

In the following the authors is given important data regarding the research parameters.

4.1 Data Collection

The empirical part is supported by a qualitative research analysis. For this purpose, semi-structured expert interviews are conducted. The interviews were executed anonymously and are only used for the examination. A qualitative research method was chosen because of the topicality and urgency of the topic. The author wanted to focus on hearing, collecting, evaluating and learning directly from the experts' current experiences and opinions. For the interviews a guideline was created in advance (see Appendix).

4.2 Variables and Descriptive Statistics

Chosen variables are always related to the original research question (see abstract). The goal is to detect which of these variables affects the success of digital leadership during a crisis and to what extent. The author illuminates most important dependent factors in chapter four "results and discussion".

In total seven experts participated on the research. Five of them are male and two are female. They come from different industries and management fields, i.e. Sales, Business Development & Project Management, Consulting as well as Human Resources. The interview duration varies from approx. 43 to 76 min. 100% of the participants live and work in the West of Germany.

5 Results and Discussion

The results[3] can be divided into the following three subchapters.

5.1 Experienced Changes and Challenges

Six leaders mentioned the switch to flexible working or home office brought drastic transformations in the way of communication. Consecutively more chat and video tools (as i.e. MS Teams) are intensively used. Here a challenge is the absence of non-verbal communication, which is very important for leaders as they can better classify the mood and feelings of their employees with their body language. Another transformation mentioned by 85.7% is the change of meeting-structures. They said in general meetings got shorter but more frequently and it is somehow challenging to cover all important topics that needed to be discussed. Due to a lack of interpersonal relations and engagement, experts think and expect their employees to be more open-minded for other/new job positions and employers or organizations. Therefore, they also expect an increase of the turnover rate. Another side effect mentioned by one leader is the lack of the experienced team or organizational culture, due to the absence of physical offices. In times of the pandemic offices cannot be normally used. An on-site "get together" is either different or no possible at all, which makes it hard to transmit the cultural spirit of the company. Therefore, a need of change in mindset is important to figure out how to transmit/convey the spirit of a company to flexible workplaces (participant 1, min. 32:00; participant 2, min. 45:18; participant 4, min. 35:51; participant 5, min. 34:38; participant 6, min. 37:31; participant 7, min. 26:34).

5.2 Helpful Skill Set

71.4% believe most distinctive and useful skills to successfully lead through the pandemic, come from self- and social competences. Especially communicative skills, the ability for cooperation, conflict resolution, creativity, openness for changes and innovation as well as transdisciplinary are skills that experts think will particularly help in disruptive times. Key competences for an effective leadership are: empathy, resilience, being communicative, the willingness to be available for the whole team (also for non-working topics), being open for changes and innovation as well as persistency. The majority (85.7%) intuitively mentioned that especially communicative skills can be very helpful in leading teams virtually, as not only the way of

[3] This chapter in regard to the results only contains the opinions and ideas of the participants. Here original sources are the recordings. As this study was executed as a part of the author's Master thesis and due to anonymity issues, these files are available exclusive for the examiners and the examination office at Fresenius University in Cologne.

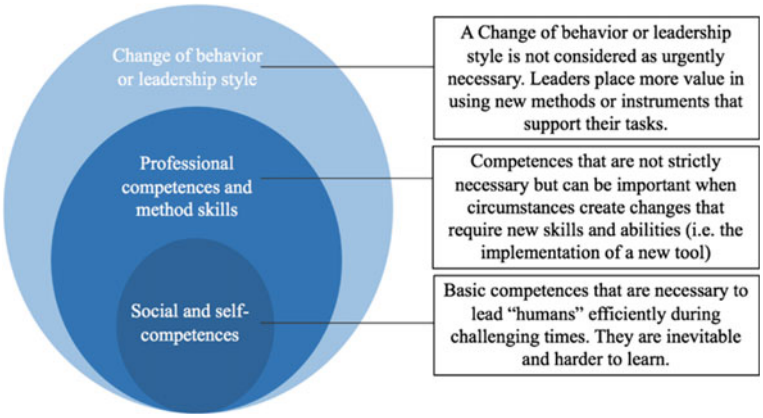


Fig. 1 Own representation: a classification of most important findings from theory and the expert interviews

communication changes, but it is also harder to maintain relationships well virtually. 71.4% said being more empathetic plays an important and centric role for a better reaction to employees' individual needs (participant 1, min 14:53; participant 3, min. 24:16; participant 4, 16:45; participant 5, min. 15:57; participant 6, min. 16:02).

The following figure (Fig. 1) summarizes the degree of importance of three variables that may affect the success of leadership during challenging times, which are 1. change of behavior or leadership style, 2. professional competences and method skills, 3. social and self-competences.

Social and self-competences are basic competences that are directly linked to a successful digital leadership. They are harder to learn but nonetheless inevitable. Professional competences and method skills do not necessarily affect the success of a digital leader. Although they can be important when challenging situations require new skills and abilities. A change in leadership style/behavior is not considered as urgent.

6 Decisive (Hard) Factors

Besides the already mentioned (soft) skills, there are essential hard factors, which are as well inevitable for a successful leadership.

6.1 Communication

Communications needs to be executed on a regular and more frequent base than before the pandemic. Here leaders need to be aware that topics which are discussed

play an important role, as the number of meetings may be increased but also got shorter. Thus, fewer topics can be discussed in one meeting. Communication channels must be kept short. Additionally, communication should be executed on several channels to reach every or as many team members as possible (participant 2, min. 01:06:38, participant 3, min. 42:15; participant 6, min. 53:06; participant 7, min. 26:34).

6.2 Technical/Workplace Equipment and Tools

An adequate installation of workplace equipment for i.e. home offices is required. Leaders are responsible for their employees to be able to work from wherever they need to work. Another important point is the workplace design. With it comes responsibility to create an ergonomic and healthy working atmosphere, i.e. by providing second screens or ergonomic office chairs. Besides, tools that ensure creativity as well as spontaneity are in great demand (i.e. MS Teams, miro, trello, etc.). Such programs support communication within a virtual team (participant 3, min. 42:15; participant 5, min. 44:23).

6.3 Trainings and Sensitizing

Disruptive transformations, different situations and new circumstances clearly lead to a rethink in order to react. Sometimes leaders have the know-how for appropriate solutions as well as measures, but sometimes even they are still learning and need to develop themselves further. Adequate trainings regarding digital leadership may be helpful to understand as well as to react better to the circumstances and employees' needs. Trainings can be also an effective way to sensitize team members for the whole topic if it is required (participant 1, min. 49:28; participant 2, min. 01:08:38; participant 3, min. 44:16; participant 4, min. 52:54; participant 6, min 54:00).

A standardized concept

It may happen that leaders feel lost or helpless during a change, when a situation is completely new to them. A standardized concept with integrated guidelines for digital leadership may be helpful to focus. What exactly should such guidelines contain? This is a question every company or leader must individually face. There is no "best practice" which suits to all companies the same. Experts agree though, that a standardized concept only may work under specific conditions. For instance, not every guideline can fit to every team, thus the concept should not be adapted obligatorily. Leaders should freely decide whether to use it or not. Nonetheless, if a company has already integrated advices on how to lead a virtual team during disruptive times, leaders may not feel lost or left alone (participant 2, min. 01:11:48; participant 3, min. 47:27; participant 6, min. 59:20; participant 7, min. 39:14).

7 Conclusion and Further Research

The results of the work show which challenging situations managers are currently dealing with during the pandemic. As the thesis only considers the point of view from leaders, it would also be interesting for future research to include the view of employees, since a crisis can be perceived very individually and subjectively. Then, on the one hand, the perception of leaders are examined, and on the other hand, the perception of employees as well. In this way, a direct comparison and research about what similarities, what differences and discrepancies exist between these two parties, are given. Another relevant view that should not be ignored in further research is the opinion of entire organizations/companies. There exist requirements for organizations so that leaders can work (more) efficiently in times of disruptive changes. To give an example, it is important that corporate agreements and standards apply that enhance flexible work, in order that employees are capable to carry out their daily activities.

Furthermore, the results of the work only relate to Germany. Another interesting perspective is a cultural comparison. Then it can be found out in which country digital leaders work most efficiently and why exactly. The respective cultural strategies/methods could possibly be implemented successfully in other countries as well. Another interesting outlook for future research is the perspective on gender and what role it plays. Are women or men getting along better in the current time and can they lead their team more efficiently? If so, what are the key factors? A study showed that "women had higher levels of empathy" than men (Toussaint & Webb, 2005, p. 679). It may be possible that women get along better in difficult times, as it is easier for females to feel empathy and thus, to better understand their employees concerns and needs.

In general, the author does believe that the problematic of digital leadership is a well discussed topic. There are many different point of views and many experts have their own approaches how to proceed during disruptive times. Although, there is no doubt that an urgency of digital leadership confronts constantly more and more leaders today and in the future.

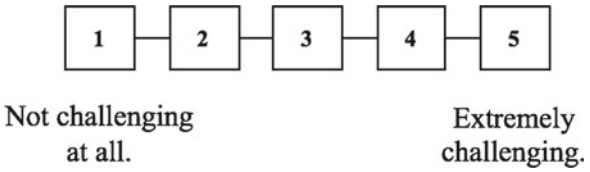
Appendix: Expert Interview Guideline

In the following the interview guideline is attached.

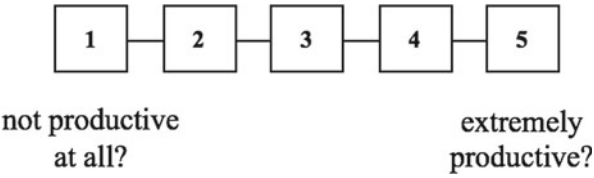
Questions:

1. Do you know the meaning of digital leadership?
2. Is digital leadership an important topic in your company?
3. Is digital leadership carried out from the top management (C-Level)? If so, how is this noticeable?

4. Do you see yourself as a digital leader and do your employees believe that as well?
5. What do you think are important characteristics of a digital leader? (Characteristics)
6. Which skills does a person need to lead successfully digital these days? (Core competencies)
7. Which of the three areas of competences (professional, personal and social competences; see figure below, in the end) are most distinctive? Which ones will help you particularly in disruptive times (times of major changes)?
8. Do you adapt your "skills" and do you consider this to be necessary in order to develop further in the course of the digital transformation?
9. What connections do you see between disruptive changes and digital leadership?
10. Are you satisfied with the way your employer reacts to disruptive changes?
11. What disruptive changes have occurred in your company (or especially in your team) as a result of the corona pandemic?
12. On a scale from 1–5: How challenging are/were these changes for you and your team?



13. How exactly did the challenges/changes affect you? How did you deal with it?
14. What special challenges do you see in virtual team management/ leadership?
15. Have you changed/adapted your management style due to the corona pandemic?
16. If you have to assess yourself, do you lead your team/ employees in the current times…



17. What is decisive for you in order to lead virtual teams effectively?
18. What do you need as a manager in order to be able to deal better with the topic of digital leadership or to develop yourself further in this area?
19. Would a uniform concept—integrated in the company—on the subject of digital leadership/virtual team leadership help you to lead your team better? If so, which aspects or contents could such a concept include?

20. What challenges and requirements do you see for digital managers for the future world of work (referring to ones that may not have been mentioned in the interview yet)?

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Digitalization in Medicine: A Critical Analysis of Chances and Challenges

Jinane Benajiba

Abstract Digitalization is increasingly covering more and more sectors including the healthcare sector. Nowadays, medicine and patient management are becoming progressively digitalized and in order to ensure medical operations and surgeries continually and regularly, more human and financial resources are needed. The transformation of medical records of patients from paper into electronic records, the automated invoice processes, the control of the patient outside the doctor's office during the care process, etc. are becoming an even greater necessity. Digitalization offers a range of new opportunities in medicine; it is already a reality and an international race for innovation. This study is concerned with the subject of digitalization in medicine. The purpose is to analyze the chances and challenges of digitalization in medicine by examining some different fields in which digitalization can help medicine and hospitals and others it cannot support and to explore, in addition, the different points of view and beliefs of experts from different medical fields in regards of digitalization, the adoption of digital technologies as well as Artificial Intelligence in medicine.

1 Preface

In 2019, I remember receiving a call from the Dean of the Digital Management Master's program and Director of the E-Commerce Institute Cologne informing me that I had been admitted to a Master's program in Germany, at the time I was struggling to find my path as a motivated young project manager, despite all challenges and voices telling me it was impossible. Less than a month later, I stand in front of my parents' door with my suitcases in hand, tears aside, I embrace my parents, my brother, my sisters and say goodbye, leaving behind my family, my job, the beautiful sun of my country and 26 years of memories. And little by little, I started finding

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my passion and embracing success, 2507 km far from "home", I found my second home.

While pursuing a master's degree in Digital Management and working as a Business Development International Manager for a German market leader for the digitization and medical assessment of bodily injury claims, I started realizing that in the healthcare industry, the reality that digitalization is the next technological disruption had slowly started being accepted by healthcare professionals and stakeholders. Technological innovations will continue to develop in the future. Even if the high majority of medical professionals accept to embrace digitalization and believe in the implementation of digital technologies in their area, the biggest challenge will be to have doctors with the necessary skills who will be able to use these technologies. Along the transition phase, this remains the responsibility of managers to make it at the first stage, easy to understand the possibilities with digitalization and at the second stage, to look for ways to increase and develop the skills of doctors in regards to digitalization. In fact, I believe that healthcare professionals with knowledge and expertise in digital technologies, for example Artificial Intelligence, will even hold a great competitive advantage. Thus, in my point of view, the first important thing is to prepare healthcare professionals to the digital change and the digital revolution which is already happening in this industry.

I hope that this paper helps you to understand some chances and challenges stemming from digitalization in medicine despite the focus on the medical area of imaging and to explore the different perspectives of health care professionals regarding the impact of digitalization on medicine.

I would like to express my deepest and sincerest appreciation to my supervisors who supervised me tolerantly and patiently by providing valuable guidance, advice, support as well as motivation from the very beginning until the completion of this work. My sincere thanks go to all the experts who were involved in this research project for their inputs that were essential in completing this research.

Finally, I must express my very profound gratitude to my dear family for providing me always with unfailing support and continuous encouragement in particular, through the process of researching and writing this paper. This accomplishment would not have been possible without them.

I Wish You a Pleasant Reading.

Dreams are worth the effort. A special dedication to my brother Abide, future young doctor and all those in the medical area embracing the Digital Revolution.

2 Introduction

Medicine and patient management are becoming progressively digitalized. The impact of digitalization in the healthcare sector is genuinely life changing. First of all, digitalization is defined as a process that transforms the way how we are accessing, storing, creating and using information, products and services. It changes the way how businesses operate and manage their processes with a different kind

of data available for gathering and analyzing. Digitalization refers as well to the integration of digital technologies in all possible activities and aspects (I-scoop & n.d, 2020).

This drives the attention and thinking towards the rise of digital healthcare. Digitalization is driving innovations in clinical operations, drug development, surgery, and data management. Digital technology is also rapidly finding its way into hospitals. In healthcare, the integration of digital technologies could potentially result in improvements in medical diagnosis, surgical interventions, prevention, treatment of diseases and support for rehabilitation and long-term care, generating a more effective, better, and automated decisions (Parliament, 2019).

Today, the coronavirus pandemic placing pressure on hospitals and healthcare workers has accelerated adoption of the hospital-based digital technologies (Parliament, 2019). Technological advancements in the fields of digitalization and AI can bring many opportunities which mainly lead to important cost savings and optimization of medical decision making (Parliament, 2019). One of the most important questions to be addressed is how digitalization can be helpful and what are the key opportunities and benefits for doctors and patients when digital technologies become part of the services offered? (Parliament, 2019). In which areas and to what extent does digitalization especially AI support medicine? Would we, as patients and human beings, accept AI to be fully involved in medical decision making? Or should medical decision making based for example, on data and statistics from the past, still be dominated by humans and always taken by them?

This study gives an answer to these questions; however, it focuses in particular on the medical area of imaging. The following pages give a brief overview about the current state-of-the-art in research on digitalization in medicine and the various questions to which this study brings answers. The author takes a closer look at how digitalization is changing and revolutionizing medicine, how Covid-19 is accelerating this revolution and what are the different opinions and perspectives of specialists. The author discusses the possibilities and limitations of digitalization in medicine and the extent at which digitalization support different fields of medicine. The conclusions that this study has resulted in are drawn in the end, in addition to limitations and comments for further research.

3 Theory

Before analyzing the chances and challenges, it is of importance to describe the current state-of-the-art in research on this topic.

3.1 Emerging Technologies Reshaping Healthcare

From robotics to big data and analytics, many digital transformation trends are reshaping healthcare in many ways.

- **Sensors and measuring data**

In medicine, a massive amount of data can be collected in distance and can impact high-stakes measurements and intervention in quasi real-time (Deloitte Centre for Health Solutions, 2020). Sensors send localized data and information to a cloud to better serve patients and the medical industry. This data collected can help medical professionals understand critical situations faster and more accurately and enable patients to be more informed about their conditions and improvements (Sharrer, 2019). As well, sensors make the healthcare activities progressing towards preventative care and maintenance of wellness (Connectivity & n.d, 2020).

Today, they are also used for detecting the COVID-19 which is associated with several physiological changes that can be monitored using wearable sensors. Therefore, sensors enable medical professionals and patients to use technology for health purposes, providing data which is today the new oil of the digital world and digital economy.

- **Connected and cognitive devices**

Connected and cognitive devices are another important technology trend. According to IBM, with ever-increasing health data, the average person is likely to generate more than 1 million gigabytes of health-related data in their lifetime. Healthcare leaders are among the earliest adopters of cognitive computing-systems that can understand, reason and learn while interacting with humans (Piwek et al., 2016).

In the past, patients were satisfied with visiting physically a doctor few times a year for a check-up, while nowadays, most people from different ages are looking to be more in touch with their own health by focusing on prevention and maintenance (BM Healthcare & Life Sciences, 2016).

Today, this is possible through the use of connected and cognitive devices which help having healthier lives by tracking health information and enable each individual to monitor it health at any moment and in any place (Reddy, 2020).

- **Robotics**

Another emerging technology that is reshaping the healthcare sector is robotics. Nowadays, robots work side-by-side with medical professionals in hospitals, performing regular daily tasks and are also active in the operating room as they are often involved in enabling minimally invasive approaches and reducing the physical stress during operations (Reddy, 2020).

- **Big data and data analytics**

Big data and data analytics are also two of the biggest game changers in healthcare. Good insights derived from big amounts of data usually give better patient

outcomes (Reddy, 2020). Dealing in a structured manner with large quantities of data makes it possible to derive information that is relevant for decision-making purposes (Stefanini, 2019). For instance, by storing, transmitting and analyzing medical data, applications have the potential to identify patients who are suitable for very specific therapies (Reddy, 2020). Using big data applications result in more precise diagnostics and short period of time between first diagnosis and therapy (Stefanini, 2019).

- **AI based technologies (OCR as part of Artificial Intelligence)**

AI technology can provide several benefits, for example, by using machine learning algorithms, it can give decision-relevant information out of complex systems and recognize patterns in behavior (Stefanini, 2019). Furthermore, its programs are used to improve diagnostic procedures and to develop treatment protocols. In medical management, AI enhances patient safety, higher effectivity of therapy and cost containment (Stefanini, 2019).

However, AI holds more powerful benefits for areas such as precision medicine, medical imaging, drug discovery and genomics (BM Healthcare & Life Sciences, 2016). In medicine, accurate and reliable data extraction plays an important role in electronic health record updates. Optical Character Recognition (OCR) is another AI based technology that helps digitize document types that may be used to verify a patient received medication and lab notebooks from clinical trials or other experiments (Von Eiff & Eiff, 2020).

- **Blockchain**

Healthcare is one of the industries adopting this technology. The reason why blockchain has a great growing potential in the healthcare sector is because it allows safer transactions, thus, the process of sharing the patient's data is safer and more confidential which makes the patients feel much better about it (Reddy, 2020). In point of fact, hospitals are facing big challenges in the management of the electronic health records of their patients which are eye-catching for hackers.

Blockchain technology manages medical records and transactions among patients, healthcare providers and even insurance companies. Therefore, many bad consequences can be avoided such as duplicate medical records and misdiagnoses. Conflicting information is automatically detected, medical records are more accurate and ever harder to hack.

In sum, digitalization through its main emphases on technology offers great new potential for patients, doctors and hospital administrations. If technology is being deployed in an efficient way, this will guarantee a sustainable system on the basis of improvements in care quality, efficiency as well as cost savings (Mejia, 2019). Nevertheless, there are limits regarding different medical areas where digitalization may support less than in others (Stefanini, 2019) depending on many factors.

4 Research Method

Considering the selected issues of this research, it is very necessary to gather the different perspectives of different experts and more particularly doctors from different medical areas. Therefore, this research is based on a qualitative research approach.

4.1 Data Collection

In the context of this research, empirical data was collected by means of structured qualitative interviews with selected experts, in particular physicians mostly specialized in areas close to radiology or those who use radiology pictures to give the diagnoses—this specialty is further highlighted in this study—but also from different medical specialties to explore the different perspectives for more enriched findings.

4.2 Variables

In order to answer the research question, various variables were selected. The selection was made in order to find out the extent to which digitalization especially artificial intelligence support medicine. Besides, they can highlight the different areas and fields of medicine that digitalization can support and further affect.

4.3 Descriptive Statistics

It is noticeable that the market will continually be growing but most of the experts interviewed as part of this study, pointed out that in Germany, the digitalization in the healthcare and medicine sector is not going very fast compared to other countries such as Israel where the digital health market is huge and more start-ups work on new technologies. This is due to many reasons which are mainly related to a hard acceptance of changing the actual way of working and proceeding inside hospitals. There are also too many decision makers who refuse digitalization—and will keep refusing it unless they are pushed to embrace it- despite the potential impact it could have on healthcare and although some health institutions are already putting digitalization at the heart of their activities, especially private hospitals.

100% of the experts interviewed strongly agree that there is a big need for digital support in medicine especially in terms of communication between different health institutions and healthcare professionals. In addition, when looking at the savings possible to make, it can definitely be noted that the full integration of digital technologies will bring many benefits. With digitalization, the time spent and wasted on

bureaucracy tasks up to 30–40% in collaboration with health insurance for example, could be definitely saved. Mistakes could also be avoided and more patients could be seen in a shorter time. Moreover, diagnoses could be done earlier which means consequently less money for healthcare system, less complications, diseases such as cancer could be detected much earlier and therefore, patients would be treated at an earlier stage.

100% of the experts interviewed think that digitalization can lead to improvements in all parts such as shown in the figure below (Fig.1).

All the experts interviewed confirm that digitalization is able to help and support all fields of medicine except areas where direct contact and examination should occur and is needed (Fig. 2). However, this support happens at different depths and at a different extent depending on the different and special fields of medicine.

In regards of medical decisions, 62,5% of the experts strongly agree that medical decisions should always be taken by humans. On the other hand, 25% of the experts state that medical decisions could be dominated and taken by computers that could be as well the final decision makers.

When it comes to resistance or acceptance, some experts and patients are quite easily willing to embrace digitalization while other express a big resistance towards new digital solutions, innovative medical technology, data collection and decisions based on data from computers. Nevertheless, it may take longer time in some areas than in others for digitalization to shape the healthcare industry, including a shift from disease treatment to prevention.

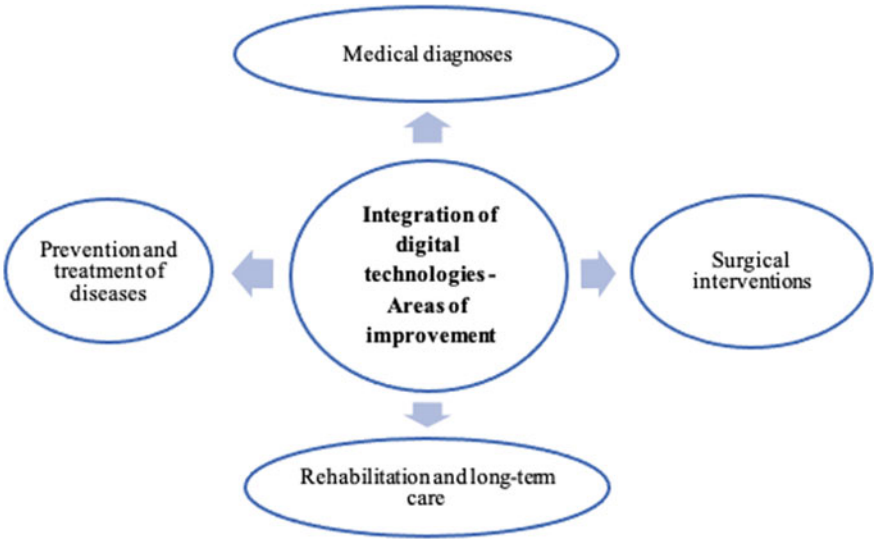

Fig. 1 Integration of digital technologies—Areas of improvement according to the experts interviewed

Fig. 2 Fields of medicine supported by digitalization

5 Results and Discussion

The objective of this study is to understand the chances and challenges stemming from digitalization in the medicine area with a focus on the medical area of imaging, and to explore the different perspectives of healthcare professionals regarding the impact of digitalization on medicine.

It seems that in medicine, there is a huge need for digital support, in particular in terms of time, cost savings, precision health and individual care, which goes as well with paperless data and digital interaction, in addition to a huge need for workflow optimization and automation. The integration of digital technologies in medicine could lead to many benefits. It could allow more access to knowledge and a broader access to medical information, which is not possible without digitalization, especially in big hospitals where artificial intelligence could help for better diagnosis through automated systems. The impact is as well on medical decisions, surgical interventions, prevention and treatment of diseases, and rehabilitation and long-term care.

Moreover, it becomes clear that digitalization is able to help and support in all fields of medicine. However, when it comes to the support of digitalization, it seems that the extent of support is different depending on the different special fields of medicine. In particular, it seems that radiology is the medical area which benefits a lot from the support of AI, especially in times of Covid-19, as AI allows to ensure high quality patient care.

In spite of the opportunities, there are a lot of limitations and challenges. In reality, it is very hard to put digitalization at the heart of medicine and implement it in all services and stations at the same time. An important limitation is related to the patient himself and the amount of data collected, in addition to cases of medical malpractice where there should be a human being taking a decision and not a computer, so that there is a possibility to assume liability in the event of medical malpractice.

Other big challenges are the acceptance of change and digitalization in general by healthcare professionals, especially the older generation, which automatically goes with trainings and learning, in addition to data protection and personal data security.

Regarding medical decision making supported by digitalization, it is possible that medical decisions are also be dominated by computers that rely on data and statistics from the past, as this allows for more objective, accurate and precise decisions to be made, while without deep and big knowledge of all possible statistics and studies, doctors in most cases decide to rely on intuition and anecdotal experiences. Moreover, algorithms together can handle large amounts of data in cloud environments, thereby giving medical experts the optimal support they need (Stockhammer 2019, n.p.). The point is that computers get better by learning, while humans, even the most experienced ones, get more and more exhausted by working.

The present work suggests the following figure to illustrate what the human brain is good at compared to computers in general and particularly in the medical field (Fig. 3).

The figure shows that doctors are better at understanding emotions, have a sense of empathy and feelings, are creative, and can make a transfer from one situation to another. However, doctors are less good at data work during long periods (collection, analysis, etc.). In addition, computers and particularly AI applications now have access to much more data than one expert is ever able to learn and can therefore outperform doctors in disease diagnoses, patterns, and anomalies identification (Diglib, 2019). The touch zone refers to the areas where medicine can be even better

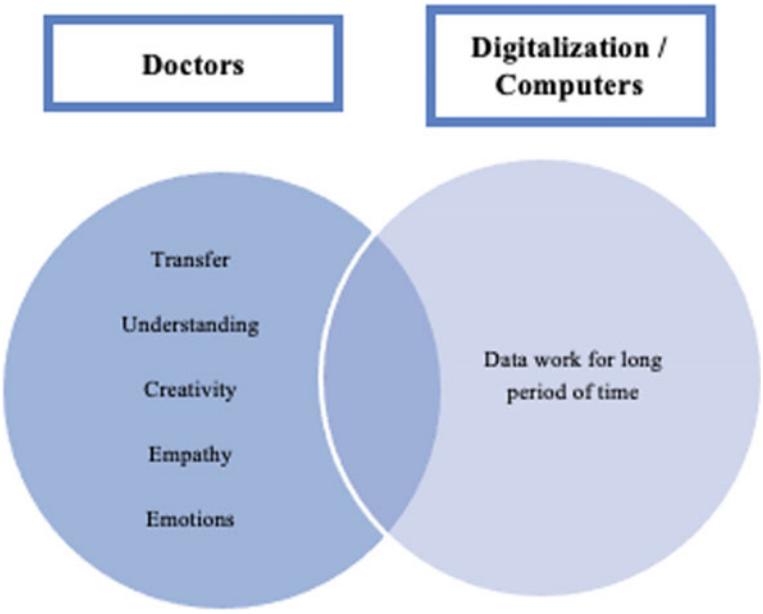

Fig. 3 Doctors Versus Digitalization / Computers

with the support of digitalization. These are the areas where digitalization can lead to better improvements in medicine such as in clinical diagnoses, treatment, prevention, and care.

However, it seems that the fact that this may not happen should also be taken into account because a high percentage of people claim that medical decisions even supported by digitalization should always be made exclusively by humans and ideally with the involvement of the patient himself in the process of medical decision-making. Most people do not agree on replacing humans (doctors) with digital alternatives but would rather accept to use digitalization as a support and assistance in the different areas stated previously. It seems that here, the ethical point of view is also important which let people wonder: "Would it be ethical to allow AI to make life-or-death medical decisions?

This study shows that digitalization can help medicine become preventive, predictive, participatory, and personalized. Furthermore, it seems that digitalization, and in particular AI is helping a lot in times of Covid-19 because AI algorithms are also able to help clinicians assess endotracheal tube (ETT) placements for critically ill Covid-19 patients. Nevertheless, in remote areas, the integration of digital technologies costs a lot of money, and needs energy access and internet connectivity which are difficult to ensure. This will always remain a big challenge although digitalization could offer great options in those areas, making the expertise, skills, and knowledge of specialized doctors available over long distances and accessible all over the world without any need for patients and doctors' mobility, in particular through telemedicine and telecare services which have the possibility to potentially save the lives of many people in remote parts of the world or areas where there is a shortage of medical specialists and healthcare workers (Diglib, 2019).

Moreover, it turns out that digitalization will definitely shape the future of medicine at a very big extent. It has already partially turned medicine around 180 degrees and will continue to do so. Digitalization has the potential to transform medicine in a sustainable way in the future and improve the relationship between patients and healthcare professionals, in addition to a shift from treating diseases towards prevention.

Some healthcare professionals and healthcare institutions are quite easily willing to embrace digitalization while others still express big resistance to the adoption of new medical technologies and digital solutions due to many factors and especially their own beliefs. Some doctors believe that technology would impact their ability to make independent diagnoses and also influence their relationships (direct human contact) with patients, while other doctors believe that technology is a means of management control. The same is for some patients who see that digitalization offers them greater opportunities, for example, greater autonomy in selecting healthcare options and in this way will as well accept to share their data during the digital transformation process. Furthermore, the acceptance or resistance in this case by patients and professionals depends as well on their understanding of the benefits of adopting digitalization, their feelings of non-trust and insecurity towards digitalization, and more importantly their age, in addition to other socio-economic factors.

The process of accepting digitalization at the heart of medicine will take longer than one can expect because human beings accept change at different rates and a successful strategy of change management inside hospitals, medical centers, and all related institutions is definitely a big indicator of success and acceptance, otherwise, resistance to digitalization in medicine will likely to be greater.

6 Conclusion, Limitations, and Further Research

Digitalization offers a range of new opportunities in medicine. As with every innovation and despite the chances and opportunities it may offer, there are a lot of challenges and uncertainty which regarding the medical industry, lets people face acceptance or resistance of new digital solutions and innovative medical technologies. Digitalization can support some medical areas more than others. Radiology is considered one of the specialties affected by digitalization and where AI in particular leads to great improvements. Other areas are the ones where more diagnoses pictures are needed to detect diseases, especially the most uncommon ones. These are mainly oncology, ophthalmology, surgery, and urology.

Specialist doctors have different perspectives and opinions regarding the integration of digital technologies in medicine. On the one hand, some express very high resistance to digitalization and in particular, the use of AI in the medical field especially in regard to diagnoses and medical decision-making and even to the most important innovations in medicine.

On the other hand, some medical professionals, and in particular the young generation of doctors are quite easily willing to embrace digitalization as they believe in the various opportunities that it brings them either in regards to diagnoses, treatment, care, or prevention. In fact, when it comes to digitalization in regards to patient management, medical professionals -as well as patients- easily understand the benefits and need as they are all looking to reduce the time they spend on paperwork and the difficulty they have to access all health data of the patients which could result in less accurate and wrong diagnoses and treatment alternatives. Reducing time spent in patient management means better conditions and more time to spend with the patients which is an ideal objective for both parties.

To sum it up, the factors of resistance either of patients or doctors are mainly the fear of digitalization and in particular the integration of new processes into practices, the lack of understanding of benefits, opportunities, possibilities, and liability among many other factors. An important reality nowadays is that Covid-19 accelerated the need of doctors to change, especially in the areas of telehealth and remote care, although this remains not easy. At the same time, patients today became as well aware of this need and already started adopting many digital health solutions such as wearables and sensor devices. To conclude, thanks to digitalization, medicine is nowadays in a transition phase moving from evidence-based medicine towards the new era of precision health, personalized care, and prevention of diseases instead of the treatment of diseases.

Finally, this present work focused mainly on physicians and professionals from the healthcare and technology sector and excluded the rest of the healthcare workforce (nurse practitioners, doctors assistants, nurses, therapists, etc.). This topic can be supported by further research by interviewing other healthcare professionals. Furthermore, the focus was on areas of medicine which are more concerned with digitalization and particularly pattern recognition, image recognition and robotics. As well, the experts interviewed are mainly specialized in those areas but no more. It could be that other areas can as well be highly supported by digitalization, for example, in the same way as radiology.

To gain more reliable data and further insights into the topic of digitalization in medicine, more data could be gathered from an online survey and can clarify other areas in medicine that digitalization, especially artificial intelligence, can support in order to draw more attention to these areas in the future. Furthermore, as mentioned previously, digitalization changes every area of medicine but in every area, the challenges are different. For future research, a case study about a healthcare institution that has already adopted some digital technologies and is using AI based technologies in detecting some diseases, such as pattern recognition software, could reveal how the healthcare workforce is trying to overcome some challenges due to personal data privacy and security, in addition to the strict regulations.

Another future research could concern the guidance for digital investments inside hospitals which could provide hospitals with concrete steps for a successful change management strategy and implementation of digital technologies, as well as reducing the resistance of healthcare professionals in that case. Further education is needed, and the digital skills of healthcare professionals should definitely be developed and improved.

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Digitalization in Education

Digitalization of Corporate Learning

Simon Schoop

Abstract The way we learn has changed dramatically due to the COVID-19 related requirements for social distancing. Lectures and trainings had to be digital formats from one day to the next. How does this shift influence corporate learning? In the corporate world, many learning initiatives have been shifted to online formats at the beginning of the pandemic without following a strategic approach. Often, they are just a one-to-one copy from what happened in on-site physical seminars to the same content being taught online. Hence, the potential benefits of fully automated, self-paced E-Learnings have not been leveraged. This is also because the cost of creating E-Learning content is at least four times higher than delivering a physical on-site learning experience. However, digital learnings formats are here to stay. How the mix between Physical On-Site Learning, pure E-Learning and Blended Learning will evolve is a crucial question for corporate HR departments as well as for employees and leaders in their role as a learner. This paper examines, how the tidal shift towards digital changes the way corporate employees, leaders and teams learn today and, in the future, given some real-world examples including Best Practices. In addition, it gives corporate decision makers an orientation on how to conceptualize and thus implement future learning programs to sustainably build the skills and competencies for their successful digital transformation.

Keywords Blended learning · Digital transformation · Corporation · Digital learning · E-learning

1 Introduction

Henry Ford once said: "The only thing worse than training your employees and having them leave is not training them and having them stay". Learning and development of employees has a long history. Educating employees has always been a key factor for successful companies. The last 130 years explain how corporate learning and

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development has evolved and gives hints on future challenges which are to personalize skill development and create impactful corporate learning strategies that put the employee first while scaling the business success (Welna, 2021, n.p.) (Fig. 1).

In today's economy with the lack of skilled resources for many future-oriented challenges, companies are facing an even higher challenge to upskill their employees in order to be able to remain at the forefront of innovation and to solve the challenges of their customers. The lack of skilled employees is increasing, especially when it comes to engineers and technicians. The lack is further increased by the demographic development and challenges such as the digitalization or climate change. In April 2021 there was a deficit of 145.000 skilled employees in Germany (Focus, 2021). This is aggravated by the fact that the number of entrants in the job market is far below the yearly number of 330.000 MINT workers and academics who will exit the market until 2030 due to age. Until 2030 the gap is projected to grow to 450.000 skilled employees. And the effort to close skill gaps is also increasing according to a study by IBM's Institute for Business Value: It highlights that the training programs are not meeting the demand and forecasts 120 million workers will need to be retrained. In 2014, it took three days of training to close a skill gap in large corporations, by 2018 that had risen to 36 days (Raconteur, 2020, n.p.). Also, corporate satisfaction with training & development programs is low: Only 7% of surveyed businesses reported being "highly satisfied" with the effectiveness of their current learning programs, although spending a total of $370 billion on employee training in 2019. Given that the most important topic beside salary is training & development, the choice of the right learnings forms becomes a key success factor for all companies today (CGS, 2019). Beside the form it is of course important to consider which skills will be crucial for survival. Companies should invest in four types of talents: digital know-how, higher cognitive, social and emotional competence, and agility and resilience.

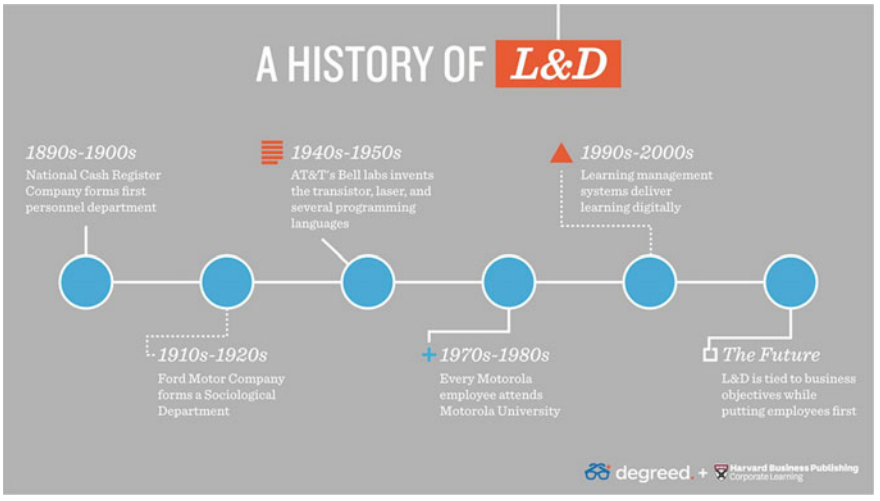

Fig. 1 History of learning and development (Degreed & Harvard Business Publishing, 2019)

To close crucial skill gaps, businesses should provide customized learning journeys. It's essential to go deeper into strategic personnel planning as businesses prepare to reinvent and scale up their business models. (McKinsey, 2020, n.p.). This paper focuses on the "how" to close the skill gaps and not on the skill gaps as such, the "what" to teach.

2 Learning Best Practices

Overview

So, as recruiting the right people will not cross the skill gap chasm, the corporate world needs to re- and upskill their employees increasingly rather than trying to close the gap just via recruitment or mergers and acquisitions. To do so, there are several possibilities:

- Face-to-Face Learning (on-site or online)
- E-Learning
- Blended Learning.

Face-to-Face Learning can occur in person, on-site or online. This was the predominant form for corporate education before Covid-19. So far, most education providers have switched their Face-to-Face Learning offerings from a predominant on-site approach to online. The learning concepts were most often not adapted to the new online format.

E-learning formats are here to stay: 90% of an estimated 1.6 billion learners worldwide have been affected by COVID-19 according to Google Trends and it can be concluded that a significant paradigm shift has taken place in the worldwide education system due to COVID-19 (Kansal et al., 2021). The CAGR of 9.2% will take the global E-Learning & Distance Learning market to an estimated $325 billion by 2025 (Forbes, 2019). A digital learning strategy involves learning by using digital assets of all kinds (e.g. Online quizzes, video recordings, online courses, blogs, podcasts, articles (E-learning Industry, 2021, n.p.). The main lever of digital learning is to use digital technology to enable self-paced and self-steered learning, anytime and anywhere on-demand. To further improve the learning effectiveness by increasing interactivity, companies are applying innovative learning techniques, such as gamification, virtual reality, and artificial intelligence. Beside the anytime-anywhere benefit, learners can track the learning progress and have visibility on the evolution of their progress (E-learning Industry, 2021, n.p.).

Blended Learning is the mix of the different kinds of learnings mentioned above. Ideally, each learning form will complement the other using its strengths (Hagley, 2019, n.p.). How the mix between Physical On-Site Learning, pure E-Learning and Blended Learning will evolve is a crucial question for corporate HR departments as well as for employees and leaders in their role as a learner. This paper examines, how the tidal shift towards digital changes the way corporate employees, leaders and

teams learn today and, in the future, given some real-world examples including Best Practices. In addition, it gives corporate decision makers an orientation on how to conceptualize and thus implement future learning programs to sustainably build the skills and competencies for their successful digital transformation.

Face-to-Face Learning

The bottom line is what counts most for most business decision makers. This includes the two major aspects of efficiency and effectiveness. For corporate learning, efficiency the ratio of input vs. output can be translated as having the right skills in your organization while spending as little time and money to achieve this goal. Effectiveness is solely focused on the output: Learning wise, an effective organization has the right people with the skills they need for their work which maximized the organization's impact as well as employee engagement.

Blended Learning does not mean, that on-site learning becomes irrelevant. There are great examples where on-site learning is still of great value, such as Amazon's Career Choice Program to enhance its employees' capabilities through live training courses provided in large spaces. Amazon hourly associates who have worked for at least a year are eligible for Career Choice Program, providing the opportunity to participants to get certificates and associate degrees in high-demand professions such as aircraft mechanics, solar technician, computer-aided design, dental hygiene, machine tool technologies, medical laboratory science, and nursing. More than 16,000 associates have taken part in the program with 39 on-site classrooms. Amazon has pledged to invest in its workforce, spending over $700 million to retrain 100,000 employees. The purpose was to upskill workforce members by providing technical skills training to non-technical employees (TalentLyft, 2020, n.p.).

E-Learning

AstraZeneca, one of the providers of Covid-19 vaccinations, provides field sales pharma training enabled by Artificial Intelligence (AI). The vehicle is a continuous and adaptive AI-powered micro-learning platform, which enables some core benefits (Raconteur, 2020, n.p.):

- Fit with day-today workflow of remote sales staff being predominantly mobile workers
- Personalized learning experience, including discussions with the experiences of medical professionals to fully understand their product and sell it better
- Providing a detailed profile for each sales representative while focusing on business-critical areas.

According to the impact analysis tools, the result was a 25% firm's sales growth in 2018 due to the rollout of AI-based training with this platform (Raconteur, 2020, n.p.). And in addition, AstraZeneca has the cost-reduction benefits from using less trainers due to the AI powered platform.

Blended Learning

Blended learning is considered an efficient type of learning in terms of cost, by lowering the costs, and time, by reducing time and being flexible to reach a broader group of employees. Thus, it is more time and resource efficient. In terms of effectiveness, the aspects analyzed are skills creation, organizational impact, and employee engagement. In terms of sustainable skills creation, quality of the learning experience, improved transfer of knowledge and student-centered learning, Blended Learning has clear edge over other forms of learning. The disadvantage is that the learning method as such requires change of the person in charge for the learning program as well as from the learner. The learner's habits to adapt to this new form of learning reduces efficiency especially when a learner uses a blended approach for the first time. Regarding the organizational impact, blended learning increases productivity due to higher efficiency and reduces fluctuation and increases employee retention and happiness. However, this requires a proficient blended learning offering and the skills to manage such programs in the department that organizes corporate learning.

The embedded promotion of collaboration and interaction is a key benefit for the learners and their employers as, among others, communities of practice can be fostered and knowledge transfer within the organization is likely to be strengthened. This makes the organization more agile as employees can work in a more versatile way. According to Statista, large corporations are supposed to be the most attractive target group for E-Learnings (Statista, 2021). From a pure cost perspective, any E-Learning component of a blended learning will yield greater effects, the more employees use it. Nevertheless, a Blended Learning approach also brings great benefits to mid-sized and small companies. We are looking at two perspectives here: the usage of a blended learning program by a large corporation as well as the offering of a blended learning program by a small company.

Intel's benefits from using Blended Learning

Intel, the High-Tech, worldwide leading manufacturer of computer chips is a great example for blended learning success. It's equipment aims to train their technicians to be highly proficient when it comes not only to operating the equipment, but also to do maintenance and troubleshoots on-demand. By combining digital simulation, scenarios and interactive exercises, Intel got to a higher employee retention rate. The blended learning approach embraced a student-centered learning technique in form of a mixture of self-paced, web-based learning, instructor presence, and preventive maintenance work during scheduled tool downtimes (Mahesh & Woll, 2007; Cgsinc, 2021).

The Web Based Training is the first component of the blended course and learners use the self-paced module to gain the basic knowledge regarding test equipment, using a quiz at the end to check their progress. If they are already knowledgeable enough, they can skip the learnings and start with the quiz right away. In the second part, the instructor led class, advanced knowledge and critical skills are being taught to the learner. This session allows students to actively engage with the instructor and other students in a face-to-face setting and apply what they learn. The third

part, the Managed Preventive Maintenance (MPM) component of the blended solution, focuses on a hands-on approach for critical equipment maintenance skills such as measuring quality, independence, and efficiency with which the technicians can increase their knowledge and productivity while being on the job. It helps reduce production tool downtime for training by leveraging previously scheduled equipment down times for training which results in a flexible and cost-effective solution.

The business case goes far beyond employee satisfaction and is tremendously positive. The Return on Investment (ROI) was calculated by dividing the total savings per year from tuition costs, technician time away from factory, and instructor costs by the costs including developers, project managers and subject matter experts. The results showed that in terms of efficiency (cost and time optimization), there was a 60% reduction in equipment downtime for training. There was a 157% ROI and a Benefits Cost Ratio of 2.27 as shown in Fig. 2.

Benefits and challenges of the Blended Learning offering "Master of Change" from 4-advice.

4-advice GmbH is a consultancy and training provider specialized in digital change and innovation, who has been awarded by large German magazines such as FOCUS and Brandeins the titles "Top Berater" and "Beste Berater" 18 times between 2015–2021. Thereof, more than 10 times in the areas of digitalization, change and innovation. In addition, the credibility for learning offerings is underlined by several 4-advice employees being lecturers at Hochschule Fresenius, University of Applied Sciences in Cologne and by being a "Telekom Bildungspartner" (Partner of Deutsche Telekom for Education).

4-advice is the author and trainer for the two seminars "Digital Innovation & Product Manager" and "Digital Change Manager" which were developed for the

Component	Kirkpatrick Level	Results
Web Based Training (WBT)	Level 1	WBT was at least as effective as a traditional approach (70%) Questions relative to the course design and content all received very positive feedback (80% and above) Level of difficulty of the course was just right (83%)
	Level 2	93% average score on Post-Test
Classroom	Level 1	Training was equal to and potentially better than the traditionally delivered training Need for more time working hands-on with the tool during the instructor led component.
	Level 2	81% average score across sites; improvement of +31% at one site and +55% at another
Managed PM	Level 3 Survey/Interview	Qualitative analysis showed an overall positive response to the blended solution over the traditional delivery method
Overall Solution	Level 4	60% reduction in equipment downtime for training. 157% ROI Benefits Cost Ratio of 2.27

Fig. 2 Summary of measurement results for components of blended solution (Mahesh & Woll, 2007, p. 53)

German chambers of commerce ("Industrie- und Handelskammer, IHK). Currently the classes are being lectured at about 20 of the 89 Chambers of Commerce in Germany. They consist of about 10 days net digital Face-to-Face teaching with a small part of an additional E-Learning. The target audience for these classes are typical IHK customers which consist primarily of Small and Medium Sized Businesses (SMB). IHK is the largest non-university education provider for post-graduates. The job levels of the participants are widespread from individual contributors to Managing Directors. Before COVID-19, tea teaching happened only as Face-to-Face onsite training, as this was the wish of the IHK. IHK markets the classes primarily via newsletter to their local subscribers. The "Dachverband der Industrie- und Handelskammern" (DIHK) is 4-advice's customer aggregating subscribers from local IHKs.

However, 4-advice has the ambition to be innovative not only by creating successful digital products, organization models or processes for its consulting customers but also when delivering learning solutions. Therefore, 4-advice decided in January 2021 to create a masterclass of its own for its own target audiences. The latter differ from the IHK target audiences by often being more digitally savvy. While IHK approaches primarily the learners, 4-advice sells to the management structures of its customers organizations—e.g. to the responsible of all corporate learning rather than to the learner him-/or herself. The format differs because it is a full-fledge Blended Learning approach, as the hypothesis of 4-advice is that this format is the most effective (and efficient) format available in the market and thus creates the most sustainable results for learners and their employers. The classes are only offered in German as open seminars with participants from several companies but also as closed, in-house seminars with participants from only one company. The education program enables participants to manage change successfully to the advantage of their company.

The first full-fledge offering "Master of Change" (MoC) is bookable online since July 2021 but the first cohort has not started yet. Online and Offline Marketing has started with the target of gaining a couple of corporate subscribers for multi-seat bookings as well as gaining traction in the SMB segment gaining a mid-range two-digit number of subscribers in 2021. Customers yielding a revenue per booking of <2 K€ are being targeted with offerings that do not need any intervention by 4-advice staff—with an automatic, only-one customer journey from the initial ad to the subscription online. Offerings above the threshold of 2 K€ per booking can involve an interaction with 4-advice staff. This is due to Cost of Sales considerations. The B2B product variants of the MoC involve lifelong access to E-Learnings and online quizzes to monitor progress. In addition, they offer technical and content support by the possibility to ask questions an automated, e-mail triggered contact form, as well as access to a community for participants that contains regular updates regarding topics related to the change topic. The subscriptions can be done by/for one person ("Professional" package) or by/for three or more persons. In the "Professional" package, 3 months of weekly online live coaching in groups of participants from all participating companies are included. The "Enterprise" package includes 6 months and three or more seats. The primary benefit of the group coaching is to

be able to ask questions while implementing the methodological learnings and to learn from other participants. In the "Enterprise" and "Enterprise+" package, three or more learners get the additional benefit of an exclusive 120 min coaching per week to implement the learnings while learning. The "Enterprise+" package also includes the implementation of an individual change project of the customer, just like in an ordinary consulting project. The major difference between "Enterprise" and "Enterprise+" is that in "Enterprise+", 4-advice Consultants deliver a project whereas in "Enterprise", the customer gets a coaching for it, but needs to implement the learnings and coaching essence him-/herself. Only in "Enterprise+", 4-advice delivers everything including slideware, project plans, excel files etc. The pricing of "Enterprise+" is very competitive in comparison to a normal consulting project and also covers a six-month period. Other, entry product variants, are targeted at self-employed customers and include an E-Learning only offering ("Basic") and an offering of E-Learning +3 monthly group coaching sessions ("Advanced"). A "Free" package gives access to a 20 min long E-Learning session to familiarize people with the concept, give an impression of the quality of the E-Learning content and to foster list-building for retargeting people who are interested with the higher value packages. The benefits for the customers are the abovementioned advantages of Blended Learnings. Also, the seminars can be offered at much lower price points in comparison to "traditional" consulting offers. A key other benefit of Blended Learnings over E-Learnings is the team experience. Even if only Live-Online and not on-site, Face-to-Face learning experience produce a much higher emotional engagement than pure E-Learnings. When communication experts say that up to 93% of the messages are being given with meta-communication such as body-language or facial expressions, the remaining 7% for the meaning of the words and graphics (Udemy, 2018), it becomes clear that a visual live online experience with face-to-face interaction with the teacher will still be far superior to a pre-recorded E-Learning consumption, even though it might not provide the full picture of an on-site, in person experience.

In comparison to high-reach education platforms such as Udemy.com the major challenge is to gain the visibility online and attract enough customers who are willing to pay. 4-advice assumes, that the many awards won, compensate for the less known brand in comparison to such platforms. The target group is not the person who looks for the cheapest course on change, but someone who values that s/he wants to invest the time into a change course that is very effective, increasing the personal market value and the value for the company.

Key barriers to overcome for a successful market presence of the MoC for the larger B2B customers are, that decision-makers in the targeted corporations are often not yet that familiar with full-fledge blended learning concepts and that no blended learning can withstand the comparison to the price of a pure E-Learning. The paradox of E-Learnings is that their productions costs about 4–5 times as much as the materials that need producing for a traditional Face-to-Face onsite training. Despite this the value associated by the buyer is usually much higher with an on-site experience in comparison to an online experience. Therefore, 4-advice believes that Blended Learnings will be the "middle way" that will make E-Learning as part of "Blended

Learnings" a commercial success. Pure E-Learnings will most often face the problem of a lower willingness-to-pay online in comparison to offline.

3 Conclusions

Blended Learning is a key concept and success factor for organization to increase their agility and remain attractive as an employer in order to be able to close the growing skill gaps. Demographics, digitalization and other market trends cannot be steered by a single company. But how learning & development is organized is fully in the hand of the employer. Therefore, the companies must use the possibilities of on-site, E- and Blended Learning to remain successful in the near digital future. The design of the right mix of learning forms is a key to future success. Depending on the workflows that differ a lot between white-collar and blue-collar jobs, companies need to calculate their business case. As a precondition, objectives and target audiences need to be clear and translated into measurable Key Performance Indicators (KPIs). Given their individual targets for how to manage their workforce, businesses need to design an adequate learning journey and strategy for all of their employees if they do not want to suffer from high attrition, high cost and employees who are not capable to cope with the requirements set forth by suppliers, partners, customers and all other stakeholders. Blended Learning solutions are the one that deliver highest value and benefits. In return they are more costly than pure E-Learnings. Therefore, companies should have a close look, where E-Learnings make more sense (often for building basic skills) and where to offer Blended and on-site Learnings (Table 1).

According to a survey done by Axonify that tested what employees are searching for, it has observed that 93% want training that is easy to complete and understand. Besides, 91% want training that is personalized and relevant, and 90% want training that is engaging and fun. Moreover, 89% want training anytime and anywhere without canceling their work, 85% want to choose training times that fit their schedule, and 80% believe that ongoing training is essential than formal workplace training. In the

Table 1 MoC product variants for SMB customers and single subscribers (4-advice, 2021)

	Face-to-face learning	E-learning	Blended learning
Efficiency			
Cost		⋆⋆	⋆
Time		⋆⋆	⋆
Effectiveness			
Skills creation	⋆	⋆	⋆⋆⋆
Organizational impact	⋆	⋆⋆	⋆⋆
Employee engagement	⋆⋆	⋆	⋆⋆⋆

end, after training, employees require frequent opportunities to practice the gained and potential skills, information, and behaviors learned (Axonify, 2018, n.p.).

Thus, employees need to have ongoing training programs that evolve their knowledge continuously through in-house mentoring, skill-gap analysis and—within the training programs—the flexibility to exit, re-entry and adapt according to the changing times. To provide this required learner experience, the training programs need to be state-of-the-art in terms of which technologies they use: Nowadays, there are many possibilities provide accurate and immediate feedback to learners with facial and voice recognition, wearables, 3D technology or other tools. As only what is measured can be improved, it is the time for companies to provide the best possible learning experience to train their employees to succeed in a dynamic market (Taylor, 2017, n.p.).

It's time to find the essential aspects that will help in the execution phase after recognizing the gaps and settling on approaches. First, businesses should begin implementing the strategy right away, test it to see how beneficial it is, whether for the company or for the people, and iterate on the good lessons while revisiting the bad ones. Nevertheless, Companies should not cut their employee-training annual budgets. According to the Training Industry Report, overall training expenditures in the United States dropped significantly during and after the Great Recession in 2009 and 2010, followed by a boom in 2011 and a return to 2008 levels in 2012. This study shows that cutting learning spending now will merely postpone rather than save organizations money, especially since the current crisis will necessitate a larger skill change than the 2008 financial crisis (McKinsey, 2020, n.p.).

By 2024, many things will change, but still the usage of the three types of learning will be considered depending on the industry and employees' levels. Hence, organizations should take into consideration many variables while choosing the best learning type. First, the objectives behind the training, second the proper time needed to achieve the good results. Third, the budget available for the training. Fourth, the audience personas and preferences, and the company's resources. Finally, KPIs to measure the success of the training at the end. By putting these variables before starting the training the company can easily recognize the best training method and can effectively measure the results.

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Vision for Increasing University Scientific Potential Under the Modern Conditions

Shalva Machavariani and Temur Maisuradze

Abstract Business development, economic growth and improving the well-being of the population are largely based on the level of the country's innovative potential, depending on various external or internal processes. It is especially crucial in Georgia to effectively implement the "knowledge triangle" in higher education—to conduct research focused on business needs and utilize the results in training programs, which boost to increasing the country's innovative potential. The effectiveness of the "knowledge triangle" in modern pandemic and post-pandemic conditions is determined by the targeted usage of digital management, digital economy, digital marketing and digital information technology. Launching a Joint Master's Degree Program in Digital Management at East European University in collaboration with Fresenius University, introducing a Business Problem Solving Platform at the University Multi-Functional Research Center, and setting up an information network is oriented on:

1. Establishment an effective partnership with businesses,
2. Systematic involvement of the University academic staff and students to participate in research on business problems,
3. Carrying out joint activities with local and foreign universities and research centers,
4. Establishment of the network of virtual business accelerators.

These activities are intended to improve the quality of research activities at the university, to integrate teaching and research activities, to improve international scientific connections, to promote business development, to train qualified personnel and to increase the income received from orders.

Keywords Knowledge triangle · Scientific potential · Business problem solving portal · Digital management · Center for multifunctional studies

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1 Introduction

According to Klaus Schwab, the founder of the World Economic Forum in Davos and its invariable president, current Fourth Industrial Revolution is characterized by a strong breakthrough in digital technology and an exponential pace of development (Klaus, 2017). The Fourth Industrial Revolution leads to the transformation of the economy, qualitative changes in production and service processes, requires an increasing number of innovations, changes social paradigms and cultural code (Zervoudi, 2020), (Hobcraft, 2018), fundamentally transforms human life style and defines the greatest modification of the single sphere of society's life throughout the mankind history (Bernard, 2018). The Fourth Industrial Revolution carries the greatest potential for enhancing human well-being and the development of society. Through the right policies and strategies, all countries, including Georgia face great opportunities for rapid development.. Which in the event of a fairly severe Covid-19 pandemic will enable the country to deal with the challenges.

Accordingly, the following should be considered:

- Training qualified, properly trained personnel for the specialties required by the Fourth Industrial Revolution;
- Qualitative connection of teaching and research components of universities and business requirements;
- Raising the country's innovative potential
- Maintenance of infrastructure corresponding to modern challenges, full use of information technology opportunities;
- Increase funding for research.

2 Basic Conditions for Achieving Progress in University Teaching and Research

To solve the problems revealed by researchers throughout the pre-pandemic period, it is recommended to: Use a systemic approach based on the knowledge triangle principle to make the linkage among the needs of teaching, researches and operating businesses (Heitor Manuel, 2016); Consideration of social, technological, financial and academic trends as key driving force in higher education area for the development of change-oriented development strategies[1]; Establishment the combination of university alliances as "complementary organizations with a wide range of knowledge" (Nowotny et al., 2001); Research based learning as well as full utilization of lecturers as well as students' creative potential for making practical solutions (Directorate-General for Research, Science, Economy and Society, EUR Report 22,845, European Commission, 2007); Representing the importance of the modern role of higher education based on conceptual approaches of economic growth, as a

[1] 11 Top Trend sin Higher Education:2020/2021 Data, Insights & Predictions, https://www.guide2research.com/research/trends-in-higher-education.

long-term development supportive key driving force required for knowledge accumulation and dissemination (Conceição, 1999). It should be noted that while analyzing the general trend of knowledge-intensive use, linking economic growth to job creation serves as a result of a pragmatic decision, as the emergence of post-industrialization in parallel with techno-globalization has facilitated rapid knowledge-based services (Ghani, 2010). The economic growth of many developed countries was also conditioned by this factor. Fascinated by profitability and the prospect of accelerated economic growth, many countries, including the United States, have begun to intensively shift their focus from manufacturing to knowledge-based services (Hepburn, 2011). It can also be considered significant that the teaching process in modern universities is changing qualitatively, the "learning economics" has been replaced by the previous "study economics" (Lundvall, 1994). The first involves the study of the newly created situation in the economy, while the second case involves the study of economics through the analysis of past events.

At the same time, Berton Clark's idea of establishing „entrepreneurial universities " became popular (Clark, 1998). In this case, too, the University, through the efforts of new generation researchers, maintains the function of a new knowledge generator, aimed at perfecting the activities of specific businesses. Purposeful construction of knowledge is carried out using "active methods", identifying the cause-and-effect relationships of each study event. Such an approach focuses on creating and implementing practical innovations that provide a real opportunity to receive business orders, raise funds for university development and conditions for establishing an international university space in a short period of time (e.g. Singapore, South Korea, Taipei, China, and some of Eastern and Central European Universities). According to the International Bank for Reconstruction and Development, those universities are the best that create new knowledge through research, use the most innovative curricula and modern pedagogical teaching methods, prepare creative specialists with practical skills for a highly competitive environment. It should be noted that due to differences in national characteristics, resources, and institutional models, there is no universal method or unified "magic" approach to formulating a world-class university development strategy (Jamil, 2009).

3 Funding for Higher Education, Science, and Innovation

Funding for teaching, research and innovation at universities is a common occurrence, with interest in adequate funding and the opportunity to invest in new sources of investment**.**

Expenditure on education is considered to be one of the main indicators of social development, as they reflect the degree of attention paid by the state and society to the education of citizens. Investments in education are not only an important way to increase the country's human capital and improve economic development prospects, but also have a social value, as education broadens people's horizons, enables them to self-realize, promotes their own well-being and healthy lifestyles.

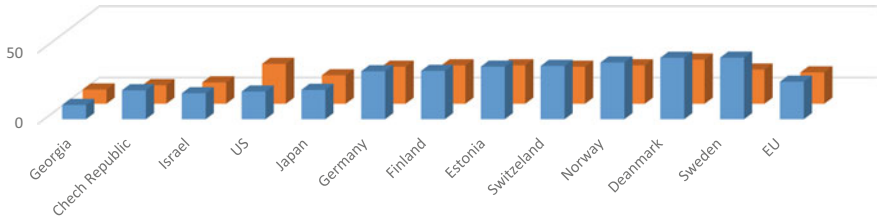

Fig. 1 Expenditure on tertiary education (UNESCO Institute for Statistics, February 2020)

Figure 1 shows Georgia's, EU's and eleven countries' expenditure on tertiary education, where **a** is countries' Government expenditure per student, tertiary (% of GDP per capita)[2] and **b** countries' Government expenditure of tertiary education (% of Governmental expenditure on education).[3]

a	10	23,3	18,2	19,4	20,6	33,6	33,9	36,9	37,4	39,8	43,1	43,2	26,3
b	10	13	15	28	20	26	27	27	26	27	31	24	22

As is Fig. 1 shows, according to position **a**. Government expenditure per student, tertiary (% of GDP per capita) Georgia data is 1.8 times less than Israel, 1.94 times less than the USA, 2.33 times less than the Czech Republic, 2.6 times less than Japan, 3.36 times less than Germany, 3.39 times less than Finland, 3,69 times less than the average data of Estonia, 3.74 times less Switzerland, 3.98 times less Norway, 4.31 times less Denmark, 4.33 times less Sweden and 2.6 times less than the EU countries. And according to position **b**. the data of Georgia is the smallest: 1.30 times less than the data of the Czech Republic and the largest: 3.1 times less than the data of Denmark.

Figure 2 shows the Government Research Expenses (% of GDP). Georgia has 10.6 times less research funding than the average for 129 countries, 12.5 times smaller than the EU average, 16 times smaller than the US, 16,9 times smaller than Denmark, 19.9 times smaller than Finland. 22.3 times less than Japan and 26.3 times smaller than Israel.

[2] https://data.worldbank.org/indicator/SE.XPD.TERT.PC.ZS.

[3] https://data.worldbank.org/indicator/SE.XPD.TERT.ZS.

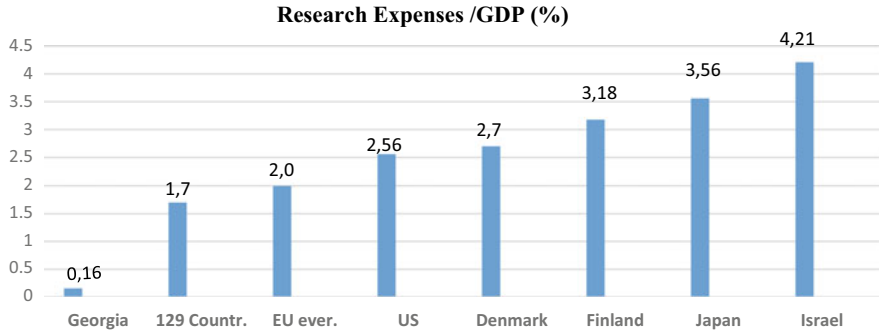

Fig. 2 Research Expenses/GDP (%) in some country[4]

Table 1 Components Determining Innovative Potential of Georgia

N	Index component/country rank	Georgia 74th	Component lieder
1	Ease of finding skilled employees	120	United States
2	Companies embracing disruptive ideas	75	Israel
3	Growth of innovative companies	108	Israel
4	Patent applications per million pop	75	Multiple (8)
5	International co-inventions per million pop	78	Multiple (5)
6	State of cluster development	120	Italy
7	R&D expenditures % GDP	82	Multiple (7)
8	Research institutions prominence	75	Multiple (7)
9	Innovation capability	91	Germany
10	Commercialization	79	Luxembourg

This circumstance, as well as the components shown in Table 1 (extracted from The Global Competitiveness Report 2019[5] in the pre-pandemic period), drive countries to innovate.

Joseph Schumpeter one of the greatest economists of the twentieth century, innovation considered to be "necessary to change the economy" (Schumpeter, 1934) and "to succeed in business" (Schumpeter, 2002). According to Peter Drucker, innovation is considered to be a key tool for business development (Drucker, 1999).

During the global crisis caused by the pandemic, it became necessary to rearrange the activities in the world in accordance with the created reality. In the shortest period of time, the digital realm covered almost all kinds of work, study, research and entertainment. Examples of accelerated adaptation to the created reality are the on-line collaboration centers, which in a few days introduced innovations to move organizations to a remote mode of operation.

[4] https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS.

[5] http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

Table 2 Top ten Innovative Countries of 2020[6]

GII TOP 10				
1. Switzerland	2. Sweden	3. The United States	4. The United Kingdom	5. The Nedthrland
6. Denmark	7. Finland	8. Singapore	9. Germany	10. Rep. of Corea

Table 3 The Business Insider 2020, 10 most Innovative Countries

10 Most Innovative Countries				
1. Germany	2. Rep. of Corea	3. Singapore	4. Switzerland	5. Sweden
6. Israel	7. Finland	8. Denmark	9. The United States	10. France

When the world has not yet emerged from the deep pandemic crisis and the complex problems of health, economy and society are to be solved on a daily basis, the issues of financing innovation should not be pushed to the background so as not to complicate the way out of the current situation. Each year, in collaboration with INSEAD, Cornell University, and the World Intellectual Property Organization (WIPO), the Global Innovation Index (GII) measures each country's innovation rating through the components listed in Table 2. Countries are ranked according to their degree of innovation. The higher the country's innovation, the more opportunities it faces to develop and overcome the difficulties caused by the pandemic.

Despite the pandemic, the top ten countries defined by the 2020 GII, is almost the same as the 2019. Republic of Korea occurred in the top ten list for the first time (Table 2). There are small movements within the provided list. The first three places were distributed due to the latest tradition (Switzerland-I, Sweden-II and USA-III). In the second ten positions took: France, Israel and China. The obvious progress of Estonia (second decade), Malaysia (fourth decade), Philippines (fifth decade) is also noteworthy.

It is too early to assess how different countries can cope with the coronavirus crisis. However, it is clear that the expected economic and social crisis will best overcome an advanced innovative countries. Recovery packages show that they have a healthy balance to protect jobs and achieve short-term stability as well as making long-term change.

There exist alternative approaches for defining innovativenes of the countries. In Davos, for example, a ranking was discussed at the World Economic Forum last year, where one of the evaluation criteria was the technological factor of resolving the climate crisis. The first place with such an approach was given to Germany[7] (Table 3).

[6] The World's Most Innovative Countries, 2020; https://knowledge.insead.edu/entrepreneurship/the-worlds-most-innovative-countries-2020-15076.

[7] The Business Insider 2020, 10 most innovative countries; https://www.businessinsider.com/these-are-the-10-most-innovative-countries-bloomberg-says-2020-1.

Regardless of the type of ranking, the experience of the promoting countries should be taken into account in order to achieve a high assessment of the components and factors that should be a defining part of the innovation policy.

4 Opportunity to Improve the Innovation Process in Georgia

Based on recent studies, a generalized model of the innovation process has been developed (Machavariani, 2019) (Fig. 3), which illustrates the logical sequence of actions to achieve innovation. According to this model, to create a novelty requires a researcher requres: Valuable knowledge and a creative approach to the case, as for conducting researches requires an appropriate amount of funds. Innovation for modern business creates a real basis for success, as the acquisition of innovation creates an important basis for creating a new product/service, and/or creating a new market. Hence through Consequently, with a purposeful pursuit of innovation, the business acquires competitiveness, which is a real precondition for making a profit. If there exists healthy competitive environment in the country, in order to achieve (or maintain) its competitiveness, businesses will constantly need innovation, so science will receive funding to conduct research, and attract leading researchers. Based on the experience of developing countries, using such an approach can significantly improve the economic and social situation in the country and achieve real progress. In response to the challenges of the Fourth Industrial Revolution, to eliminate the damage caused by the pandemic, it is of paramount importance to properly manage the innovation process. This requires the development of an action mechanism aimed at mobilizing researchers focused on highlighting the problems facing businesses and involving relevant government agency in the innovation process. Currently a Multifunctional Research Center has been established at East European University (see Attachment); The global communication network is designed and an interactive problem portal is registered at National Intelectual Property Center of Georgia (Sakpatenti).[8]

- The Multifunctional Research Center is a multi-disciplinary collaboration unit that provides business-specific research (through involving research groups, university-based accelerators, and students). The center provides a broad discussion of the interim and final results obtained on the basis of the research (in the form of on-line conferences, seminars, meetings) with the participation of stakeholders, which creates the opportunity to deliver agreed material to the customer.
- Interactive Problem Portal allows the client to widely disseminate the problem he/she faces among individual specialists consulting institutions both within the

[8] With Sakpatenti Deposition Certificate 7101, Type of work: "Methodical paper", Author, EEU Professor, Temur Maisuradze.

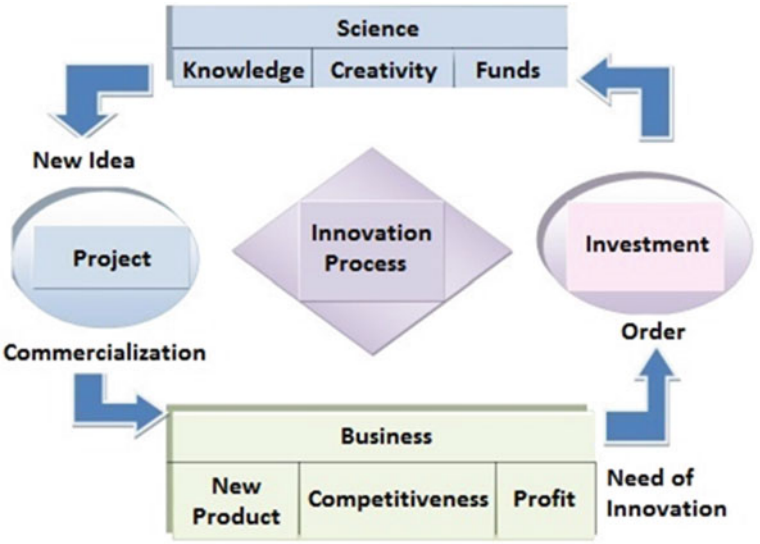

Fig. 3 A General Model of the Innovation Process

country and abroad. The customer has the opportunity to choose the most acceptable proposals received from the prospective performers (whose copyright is guaranteed) and conclude an appropriate contract with him. In fact, the portal is focused on finding innovative solutions to problems.

– The global communication network provides communication within the country and abroad, as well as the smooth operation of a multifunctional research center and an interactive portal through the modern information technologies.

East European University's curricula has been improved for scholars, lecturers and students' wide engagement, a stimulation foundation for researchers' acrive engagement has created, the construction of a multifunctional research center at the new campus of the University has been completed, and cooperation agreements have been concluded with Georgian Small and Medium Sized Entreprises Association—GSMEA (uniting 3,000 small and medium enterprises), Georgian Technopark, the Georgian Partnership Fund, research centers, universities, and most importantly, has received state accreditation for the implementation of a joint master's degree program in digital management with the University of Fresenius of Applied Sciences (Cologne).

5 Conclusion

1. The presented approach is focused on the integration of teaching and research, on "creating a knowledge triangle", to form a model—a competitive business and a modern high-ranking university (The Challenge of Establishing World-Class Universities (2009). The World Bank, Washington. DC)
2. Training as well as an employment of qualified personnel will be supported. The portal also enables all level students to select the desired topics and tailor their course or diploma theses to solving real problems, which will help active and promising students to be invited at interested companies while studying.
3. Promote the activities of companies embracing disruptive ideas
4. Promote the innovative potential of companies, increase the number of local and international scientific clusters
5. Increasing the number of patent applications, the creation of innovations and their commercialization also the expansion of international scientific (innovation) cooperation will be facilitated.
6. There is an opportunity that academic staff, researchers, doctoral students and masters from Georgia and different countries be united through the global information network that gives them an equal opportunities of engagement to lead their efforts to solving problems of businesses operating in different industries registered on the portal.

The Business Problem Interactive Portal is primarily an innovative SME supportive system (Machavariani and Shengelia, 2016) that through the comercialization of innovative ideas generated from universities, research institutes, and individual scholars facilitates enhancing business competitiveness and in return, suppliers of innovative ideas are given the opportunity to raise funds to develop research activities.

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Decision-Making Process Transformation in Post-Covid-19 World in Higher Educational Institutions

Tamta Lekishvili and Vasil Kikutadze

Abstract For the last decade, higher education institutions have faced substantial obstructions. COVID-19 has created several serious challenges for educational institutions and increased the impact of different external factors, like political, demographical, financial and the most important—technological trends on the sector. University leaders' effort to maintain the core mission in these severe challenges is quite intense, however in the post-Covid situation, it is inevitable for higher education institutions to rethink of their mission, value proposition and operating models to successfully meet their strategic objectives. University executives deal with the tough decision-making process, their financial and human resources need to be reshuffled to resist the multi-faceted crisis. Besides providing staff with necessary tools and working environment, university leaders need to develop new working methods, intensify the communication and provide right directions. Simultaneously, institutions should not forget the wellbeing of their staff and students' communities. For this purpose, number of funding schemes have been elaborated to support them financially. This process will require new approach of managerial decision-making, which will be aligned with the corresponding Management Information Systems (MIS). Differently from the classical methods, the process now requires the engagement with all members of the academic community and all of the stakeholders. The main goal of the leadership will be bringing in all different perspectives together and finding the best possible solutions for the "new normal".

Keywords University leadership · Technological trends · Management information systems

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1 Introduction

Education systems worldwide have been faced number of challenges posed by the Covid-19 pandemic. According to UNESCO, the transition from physical to digital classroom has affected 1.6 billion students in more than 190 countries (Harris & Jones, 2020). It is obvious, that this crisis is causing short and long-term consequences and it is still not the end. There is a need of more effective interventions at each level of education management. The Covid-19 pandemic has forced Higher Educational Institutions (HEI) to go through the significant changes. The leaders of the HEI's had to rethink elements of their daily activities and they were forced to adopt the agile leadership behaviors. Use of technology was increased in order to maintain operations while adhering to a changing landscape of new health guidelines and procedural regulations (Dwivedi et al., 2020). HEI in developing countries were expected to fail in conducting teaching, learning and administering functions because of the overall social conditions caused by the Covid-19 (Salimi et al., 2020). Due to this pressure and the limited budgets, leaders of HEI's have been forced to think and act strategically and creatively. Leadership in higher education has been challenged to manage a crisis with more unpredictable situations and decision-made are unprecedented. HEI services included but not limited to the activities like student education services, management financing, research development, increased marketing, student admission, and continued globalization. Leadership in each direction plays a crucial role especially during a crisis. Institutional leadership is expected to strengthen and expand its capacity in order to become more adaptive. As for the faculty, at this level, leadership should address the main issue filling the gap of communication between stakeholders. Leaders should speak with direct reports yet additionally guarantee various roads for all voices to be heard. It should be multi-modular including, for instance, email, online media, social media, individual and group meetings so that all have the chance to give input. (Rivera-Mills, 2021). Leadership at the student level is directed at fostering stronger student learning outcomes through the use of the IT platform (Nugroho et al., 2021).

According to the World Bank reports Covid-19 pandemic is threatening and has great potential to worsen the quality of education. It is obvious that the impact of closing schools is definitely negative, however in overcoming these problems, crises can become opportunities. On the one hand, innovations, creativity and use of information technologies at a wider scale takes the major part of strategic decision making, on the other hand research in the field of education management from different perspectives have been unprecedentedly increased. Prior to the Covid-19, research in this area has been scarce, especially. There has been little prior research addressing the relationship between leadership at an academic institution and the application of principles of adaptive leadership during a crisis, which led to the transformation of decision-making process and introduction to a new decision-making support system (Lindle, 2020). This paper tries to make contribution to this research topic and by

presenting a case study that demonstrates the practical consequences of this transformations described in the theoretical literature. In particular, it examines adaptive leadership at HEIs as it addressed the consequences of the Covid-19 pandemic.

2 Method

This study used the qualitative case study method. The method of secondary literature analysis and synthesis was used. The instruments used were observation, interview, and documentation. In the frame of this work number of different countries perspectives was considered. The study tried to find out what traits were expressed by the HEIs in different countries during the Covid-19 pandemic, what kind of strategic decision-making process transformation have been taken place and what was the solutions and innovations introduced by the HEIs during this process. Next to the examples and case studies from international experience, this paper highlights the insights from Georgian perspective.

3 International and Georgian Perspectives in Education Leadership During COVID-19 Pandemic

3.1 Transition to Remote Working Mode in Higher Education Institutions

An increasing dependence on information technologies which advance persistently in a modern business world is modifying the ideas and perceptions of work performance. Because of this, many organizations started to look for an alternative work places and to enroll in a remote working mode. This concept of virtualization of working environment is not new from the time of introducing Internet in 1980s and by considering the twenty-first century advancements in technologies. According to a global survey conducted by the International Workplace Group (IWG) in January 2019 on over 15,000 professionals of 80 nationalities, 62% of businesses currently have a flexible workplace policy and over half of the employees are working remotely for at least 2.5 days a week (Dixon, 2019). As per the IWG study, among the main drivers of flexible working are national or international business expansion, an interest in reducing capital or operational expenses, and a desire to consolidate business portfolios. On the other hand, challenges and obstacles addressed by the IWG report include changing long-standing non-flexible organizational cultures and understanding the benefits of remote working, as well as major concerns regarding privacy and technology requirements (AlMarar et al., 2020).

3.2 Response of the World Education Systems to Covid-19

In December 2020, the World Health Organization (WHO) declared the Coronavirus (COVID-19) outbreak to be a pandemic and for the purpose of preventing the rapid and wider spread of the virus social distancing was the way suggested by WHO (2021). Consequently, organizations globally started to gradually move to distance working. Including them the most vulnerable challenges were faced to Educational Systems.

According to the article in Journal of Business Research and the research conducted by the University of Washington, where the leaders and chief executive of 172 Universities participated in the surveys (Krishnamurthy, 2020), the challenges of the decision makers in US system was highlighted. The participants of the survey differentiated the short-run and long run concerns about the pandemic effects. In the short-run they consider mental health of students, mental health of employees, short-term unbudgeted financial costs, accelerated rates of student attrition and the physical health of employees as the most important ones (Krishnamurthy, 2020). Financial support provided by the government is considered to be short-term relief from the losses and for this reason, university leadership has to start looking for the long-term solutions which will guarantee financial stability of the university (Krishnamurthy, 2020). Transformation of the universities in US resulted in the following actions—utilizing technologies to:

- "unbundle and re-invent teaching, learning, assessment and certification;
- focus on value, not just quality;
- change the use and roles of faculty, mentors and peer-to-peer learning;
- transform business models by: continuously seeking new income streams that can mitigate the need to continuously increase tuition to fill revenue gaps, reducing operational overhead (i.e. new buildings, parking lots, dorms) and other costs, seeking lower price points and enabling more rapid completion of learning objectives, and reducing the total cost of achieving learning goals" (Krishnamurthy, 2020).

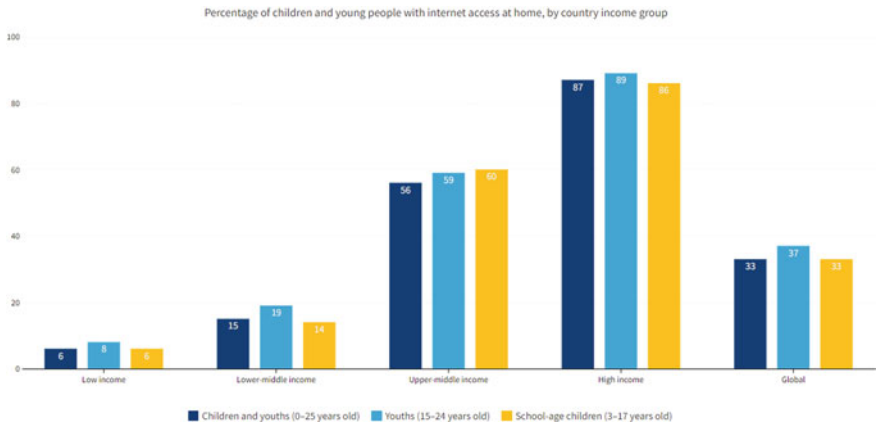
According to *An assessment of COVID-19's impact on Finnish University Leadership* by (Pekkola et al., 2021) Generally, university top management (rectors and vice rectors) and middle management (deans) reported that the COVID-19 pandemic had been managed effectively at Finnish universities. Regardless of primary operational functions' continuity, many academic leaders faced similar challenges in relation to crisis management, including: (1) a massive increase in emails and requests via electronic communications; (2) an uneven impact from the crisis on workload (i.e., key personnel were overloaded); (3) a lack of information on academics' performance and well-being; (4) the restrictive nature of formal communications about the crisis (i.e., the absence of face-to-face "coffee conversations" and adaptation to the new online format of "announcement mode" meetings); and (5) the stress of overlooking important information (Pekkola et al., 2021). Nevertheless, the pandemic also positively impacted crisis management, which, to an extent, offset some of the challenges: (1)

Online tools and the ability to work functioned better than expected; (2) people were forced to take a "digileap"; (3) meetings were shorter and more efficient; (4) people were more punctual and better prepared for meetings; (5) delegation was easier and decision-making was faster; and (6) some people had more time for research. Universities' staffs were viewed as an asset during the crisis. Being autonomous, they were well-adapted to taking on several roles as part of their everyday work and can be viewed as "hybrid" professionals (Pekkola, et al., 2020). It has been suggested that an adaptive and flexible attitude is needed during a crisis (Farazmand, 2007). Although their academic work and operational environment constantly were in flux (Siekkinen, 2019), managers and university staff generally were able to take appropriate action when needed.

As long as, the Covid-19 Pandemic covered the whole world, universities globally faced more or less similar conditions. From the spring of 2020, Chinese universities were forced to shift to online education. Online education reforms in China fostered the process of development of so called Massive Open Online Courses (MOOCs) which is open education network based on information and network technologies. For the purpose of supporting this model, universities in China, in particular the Peking University implemented the number of strategic decisions in terms of technological improvements, financial support of stakeholders, marketing strategy adaptations and transforming their operating models (Bao, 2020).

3.3 Georgian Perspective

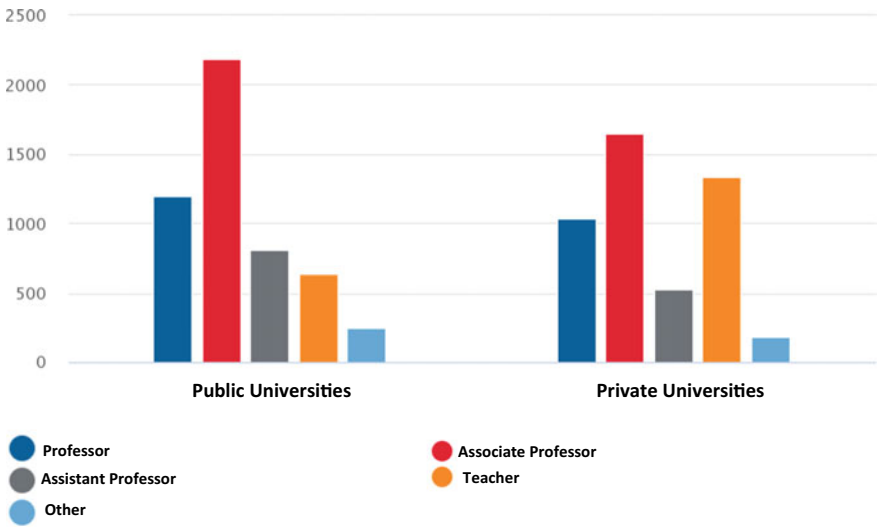
As developing country, Georgia experienced remarkable pressure from the global pandemic situation. According to the UNICEF Report globally, only 33 per cent of children and young people have internet access at home. But there is a significant gap between high-income and low-income countries, 87 per cent coverage compared to 6 per cent, respectively (UNICEF, 2020).



Source https://data.unicef.org/resources/children-and-young-people-internet-access-at-home-during-covid19/

First of all, it should be mentioned that Georgia was not experienced in online education system.

There are 56 authorized Higher Education Institutions in Georgia, including thousands of academic personnel divided between the public and private universities as follows:



Source https://www.geostat.ge/ka/modules/categories/61/umaghlesi-ganatleba

Primary challenge for the government and the Ministry of Education, Science, Culture and Sport of Georgia was that there were no legal frameworks and the regulations dealing and recognition of online education. Changing the format of teaching worldwide has given no chance to the Government and the Ministry to start the gradual transition to this format but is was inevitably important to act instantly—giving permission to HEIs to operate in a distance mode.

Inevitable changes to the management style and policy formation concerned other central bodies in Education Sector in Georgia. National Center for Educational Quality Enhancement reported the number of responsive actions to the Covid19 Pandemic, among them:

- They provided the supportive sources for the HEIs, like:
  - Suggestions for institutions on quality assurance in e-learning;
  - ENQA Recommendations on Quality Assurance in e-Learning;
  - Useful resources for e-learning;
- New Policy for Human Resource Management was introduced developed with the support of Twinning Project, DAAD and Foundation Archimedes (Estonia);

- New Policy for Personal Data Security in terms of remote working mode was introduced.

The legal aspect of the issue is not of course the main obstacle, that the universities faced during these times. Access to the internet still remains the dominant issue while dealing with the challenges caused by Covid-19, especially in the regional parts of the country. For this reason, government of Georgia issued number of projects and allocated the corresponding funds to make education more accessible for the wider community.

In order to provide access to distance learning during pandemic, the Ministry of Education, Science, Culture and Sports signed a memorandum of understanding with three mobile operators operating in Georgia—Silknet JSC, MagtiCom Ltd and Vion Georgia Ltd. (Beeline brand). And students and teachers at private schools, after passing the relevant procedures, will enjoy a preferential mobile internet package until the end of the 2020–2021 academic year. The preferential tariff for mobile internet package was also supported by the Georgian Communications Commission. The aim of the memorandum is to provide teachers and students with the most accessible and high-quality mobile internet connection in public and private educational institutions.

It can be mentioned that the Covid-19 pandemic touched to the universities' leadership at each layer. The first action, after satisfying the primary needs of the students (in terms of providing internet access) universities with the support of the government started to find the ways of communication that would enable them to function effectively. One of the solutions for the university leadership was to **diversify the communication channels**—online platforms, next to the radio broadcasting and television was now launched.

The social role of universities has become more and more important and the universities in Georgia started to launch new projects. Considering the case of East European University (EEU, Tbilisi) we can show the general tendency in Georgian Higher Educational Institutions. One of the remarkable projects provided by EEU was **Free online courses for Prospective Students**—professional from the university delivered classes for preparing prospective students for National Examination. Another aspect of providing quality online education was **Increased Internet speed for staff, lecturers and for students in need**.

Besides socially important issues, university leadership has faced the need of "reconstructing" the working environment for the new reality. The universities have elaborated so called Covid-19-Policy in order to address the topics of "new normal". EEU leadership has made major updates in their financial, operational, marketing and generally in their strategic plans, in order to keep quality of online education. University has purchased new online platform, provided specially adapted workplaces for those who needed physical equipment, opened additional medical points and recruited staff in this direction, library services were now expanded for easing the access to materials and so on. The university also launched new electronic system for the official processes happening at the administrative and management level.

Next to the transformation in leadership and management style, changes to the teaching methodology was unavoidable. Formats of the examinations were completely changed, and more verbal and analytical methods of teaching were introduced.

Psychological readiness and distance-learning vulnerabilities are still hot issues of discussion in Georgia and abroad. Self-awareness and responsibility, self-discipline, fear of new technologies as well as hazards of social distancing and its effects on human being are still under the interest of many researchers.

4 Conclusion

Changes and the scale of transformation caused by Covid-19 is still likely to be unpredictable.

Decision-making process transformation and adaptive leadership in Education Systems is very tangible and obvious globally. Expected result of the transformations in the above-mentioned directions mostly results in reshaping of the Higher Education Institutions, not only at operational levels, but on the strategic levels. Universities' missions, visions and strategic plans are expected to adopt a "new normal" and with the increasing spread of technologies rise the necessity of innovations and reshaping of a system as a whole.

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Pathway for Elaborating Model of Culture of Innovation and Creativity at Universities as Prerequisite for Their Performance

Tatia Gherkenashvili

Abstract In the twenty-first century universities, as intellectual potential formative institutions and tool for creating effective national system are needed to be much more focused on innovation and creativity, rather than on stability and standardization. An innovative and creative universities boost to the development of globally competitive economics, through forming productive and flexible workforce, idea generation, creating technologies and their dissemination. Hence, those who want to create a world class university will need to develop an organizational environment which boosts to innovative and creative behavior of its members leading to university performance and the economic development of the country. In terms of innovation capability and Skills, Georgia takes quite law positions that is proved by "The Global Competitiveness Report, 2019" according to which it takes 91st and 46th places out of 141 countries. Thereof it's vitally important to investigate the leading countries' (USA, Switzerland, Germany, Finland, Denmark, Singapore, Italy, Israel, Japan, Luxemburg and South Korea) world-class universities' (THE World University Rankings 2021) key determinants of innovative and creative organizational environment as well as to outline and analyze possible strategies and pathways for elaborating model of innovative and creative environment that will fit to Georgian reality.

Keywords Organizational environment · University performance · Culture · Innovation · Creativity · World-class universities

1 Introduction

Since the new challenging and rapidly changing era has imposed new and higher demands as well as expectations on universities, also due to the tendencies existing throughout the world of twenty-first century revealing the significance of culture of innovation and creativity at universities striving for competitive advancement in

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the market, also universities as intellectual potential formative institutions serving as humankind's knowledge bank, think tank and tool for creating effective national system, are needed to be much more focused on innovation and creativity, rather than on stability and standardization in order to nurture globally competitive economics, create as well as sustain a "world-class university" that will lead them to the desired goal. In other words, university leaders need to think more deeply than at any time before in history: how can research universities sustain their vitality and continue to lead societal development?

As mentioned above, one of the most desirable and feasible roads to take for research universities is to search ways for transforming themselves into an innovative universities.

On the basis of The Global Competitiveness Report, 2019,[1] published by World Economic Forum,[2] Georgia's overall (74th place out of 141 countries) as well as innovation capability (12th pillar-91st place) and Skills (6th pillar-46th place) positioning is quite unenviable. Hence, its crucial to identify key factors that inhibit innovative potential of the country and to investigate the leading countries' (USA, Switzerland, Germany, Finland, Denmark, Singapore, Italy, Israel, Japan and Republic of Korea) world-class universities' key determinants of innovativeness, as well as outline and analyze possible pathway for elaborating model of culture of innovation and creativity that will fit to the universities of Georgia as tertiary education provider institutions that will enable them to build collaborative innovative environment based on stable goals where individuals will have the autonomy to pursue experiments and develop and maintain world class status.

To make in-depth analyses paper starts by constructing definition of culture of innovation and creativity then on the basis of researches conducted on innovations, reveals the key cultural values as well as factors that increase and inhibit innovations. After that it provides the clear definition of The World-Class University and identifies the attributes that play key role for innovativeness in top universities and finally it emphasizes the importance of digital transformation as one of the ways for creating innovative environment at HEIs.

2 Culture of Innovation and Creativity

According to OECD and Eurostat Guidelines for Collecting and Interpreting Innovation Data (Oslo Manual, 2018) "*Addressing the current and emerging economic, social and environmental challenges requires novel ideas, innovative approaches and greater levels of multilateral co-operation. Innovation and digitalization are playing an increasingly important role in virtually all sectors and in the daily lives*

[1] WEF (2019).

[2] Assesses the ability of countries to provide high level of prosperity based on Global Competitiveness Index.

of citizens around the world. As such, policy makers are placing the "innovation imperative" at the center of their policy agendas."

On the basis of MaRS Discovery District "*A culture of innovation is an environment that supports creative thinking and advances efforts to extract economic and social value from knowledge, and, in doing so, generates new or improved products, services or processes*".[3]

Innovation is also defined by various authors according one of which "*Innovation is a new idea, or more effective device, or process* (Tavana et al., 2017). Innovation can be viewed as the application of better solutions that meet new requirements, unarticulated needs, or an existing market need. A novel device is often described as an innovation; but in economics, management science, and other fields of practice and analysis, innovation is generally considered to be a process that brings together novel ideas in a way that they have a noticeable impact on science, education, economy or society.

In the organizational context, innovation may be linked to positive changes in efficiency, productivity, quality and market share. However, recent research findings highlight the important role of organizational culture in enabling organizations to translate innovative activity into tangible performance enhancements.

As for the culture of *creativity* that encompasses three levels (discovery, invention, creation) is defined as an environment where employees feel safe and empowered, and feel a sense of ownership over the company's products and services. As centers of knowledge creation, higher education institutions (HEIs) and, in particular, universities, have to provide academic and social environments that favor the creativity of the human potential, which in turn need to receive appropriate support from governments and other stakeholders. If universities do not succeed in this undertaking, the very goal of a knowledge society would be at stake. Purely mechanistic approaches geared towards reaching predefined targets of accumulating huge profits at the expense of quality would certainly not allow higher education institutions to achieve their strategic goals. "*The complex questions of the future will not be solved "by the book", but by creative, forward looking individuals and groups who are not afraid to question established ideas and are able to cope with the insecurity and uncertainty this entails*" (EUA, 2007: 6).[4]

What are the problems that lead organizations to be wedded to cultural norms, rather than to take risks? And what are the cultural values that foster innovations?

Outcomes generated from researches (Machavariani, 2019) conducted under The Archimedes Foundation,[5] INTAS Program,[6] Open Science Foundation,[7] EU Seventh

[3] https://www.marsdd.com/news/what-is-a-culture-of-innovation/.

[4] EUA (European University Association) (2007).

[5] Project "Analysis of Existing Georgian Key Technologies", 2006–2007.

[6] Project NO: 06-1000017-8811, "Research and Development of Science, Technology and Innovation Policy, 2008–2009.

[7] OSF, EE Program, Project: "Training of Georgian Experts in Tallinn University of Technology in Order to Commercialize Innovation Technology and Organize Business Incubators, 2010.

Framework Program,[8] Friedrich Ebert Stiftung Foundation South Caucasus Office,[9] three factors of innovativeness of Georgia revealed, mainly: **New Knowledge** (innovation), **Project** (for implementing innovation), **New Knowledge Transfer** and **innovations commercialization**. As for the factors that inhibit innovative potential of Georgia are as follows:

- Lack of funds allocated to science;
- Research-teaching gap at universities;
- Weak link with business;
- Irrelevant Selection (hiring) of perspective personnel;
- Existing of non-comfortable organizational environment.

Table 1 shows researches conducted on innovations, revealing the key **cultural values** that foster increasing innovations, mainly: Creativity, Initiative, Entrepreneurial thinking, freedom/Autonomy, Risk taking and motivation, group working, accessible resources, marketing orientation, decision making, personnel engagement, lifelong learning and flexibility.

2.1 The World-Class University and Its Attributes

Throughout the past decade, the term "world-class university" has become a catch phrase not simply for improving the quality of learning and research at higher education provider universities but also, for developing the capacity to compete in the global tertiary education marketplace through the acquisition, adaptation, and creation of advanced knowledge. With students looking to attend the best possible tertiary institution that they can afford, often regardless of national borders, and with governments keen on maximizing the returns on their investments in universities, global standing is becoming an increasingly important concern for institutions around the world (Williams & Van Dyke, 2007).

Becoming a member of the exclusive group of world-class universities is not achieved by self-declaration; rather, elite status is conferred by the outside world on the basis of international recognition.

In previous years there have been many ways for identifying and classifying world-class universities, though lately more systematic ways have appeared (IHEP, 2007).

In spite of the fact that most of the best-known rankings categorize universities within a given country, there have also been attempts to establish international rankings. One of them is, "The Times Higher Education World University Rankings" (THES) which include more than 1,500 universities across 93 countries and regions, making them the largest and most diverse university rankings to date.

[8] Project IncoNet Ca/SC, Grant Agreement # 244417, 2011–2014.

[9] Project: "Perspectives for the European Development of SME's Business in Georgia", 2015–2016.

Table 1 Cultural values fostering innovations

Values	Sources
Creativity, initiative, entrepreneurial thinking	Wallach (1983), Shrivastava and Souder (1987), Claver et al. (1998), Schneider et al. (1994), Martins and Terblanche (2003), McLean (2005), Jamrog et al. (2006)
Freedom/Autonomy	Shrivastava and Souder (1987), Ahmed (1998), Arad et al. (1997), Martins and Terblanche (2003), McLean (2005), Jamrog et al. (2006), Tierney (2014)
Risk taking and motivation	Wallach (1983), Claver et al. (1998), Martins and Terblanche (2003), McLean (2005), Jamrog et al. (2006), Tierney (2014)
Group working	Arad et al. (1997), Martins and Terblanche (2003), McLean (2005), Jamrog et al. (2006), Tierney (2014)
Accessible resources	Ahmed (1998), McLean (2005), Jamrog et al. (2006), Tierney (2014)
Marketing orientation	Martins and Terblanche (2003), Jamrog et al. (2006)
Decision making, lifelong learning and flexibility	Martins and Terblanche (2003), McLean (2005), Tierney (2014)
Personnel engagement	Claver et al. (1998), McLean (2005)
Lifelong learning	Martins and Terblanche (2003)
Flexibility	Arad et al (1997), Martins and Terblanche (2003)

According to the World University Rankings 2021[10] (Table 2) which is based on 13 carefully calibrated performance indicators that measure an institution's performance across four areas **(teaching, research, knowledge transfer and international outlook)** the leading places in the ranking take universities from US, followed by Switzerland, Germany, Singapore, Japan, South Korea, Israel, Finland, Denmark and Italy (see Table 3). These universities are recognized in part for their superior outputs. They produce **well-qualified graduates** who are **in high demand on the labor market**; they conduct **leading-edge research** published in top scientific journals; and in the case of science-and-technology–oriented institutions, they contribute to **technical innovations through patents and licenses**.

To assess the relative merits of the design dimensions of the various excellence initiatives beyond looking at rankings results, this paper applies the analytical framework developed in The Challenge of Establishing World-Class Universities (Salmi, 2009). The superior results of world-class universities (WCUs)—**highly sought**

[10] This year's ranking analyzed more than 80 million citations across over 13 million research publications and included survey responses from 22,000 scholars globally. Source: https://www.timeshighereducation.com/world-university-rankings/2021/world-ranking#!/page/0/length/25/locations/DE/sort_by/rank/sort_order/asc/cols/stats.

Table 2 Times Higher Education World University Rankings[11]

		2021	2020	2019
Stanford University	Stanford, CA, United States	2	4	3
Harvard University	Cambridge, MA, United States	3	7	6
California Institute of Technology—Caltech	Pasadena, CA, United States	4	2	5
Massachusetts Institute of Technology (MIT)	Cambridge, MA, United States	5	5	4
University of California, Berkeley	Berkeley, CA, United States	7	13	15
Yale University	New Haven, CT, United States	8	8	8
Princeton University	Princeton, NJ, United States	9	6	7
University of Chicago	Chicago, IL, United States	10	9	10
Johns Hopkins University	Baltimore, MD, United States	12	12	12
University of Pennsylvania	Philadelphia, PA, United States	13	11	12
University of California, Los Angeles (UCLA)	Los Angeles, CA, United States	15	17	17
Columbia University	New York City, NY, United States	17	16	16
Cornell University	Ithaca, NY, United States	19	19	19
Duke University	Durham, NC, United States	20	20	18
ETH Zurich—Swiss Federal Institute of Technology	Zürich, Switzerland	14	13	11
Swiss Federal Institute of Technology in Lausanne	Lausanne, Switzerland	43	38	35
University of Zurich	Zürich (Kreis 1), Switzerland	73	90	90
University of Basel	Basel, Switzerland	92	94	103
Ludwig-Maximilians-University (LMU) Munich	München, Germany	32	32	32
Technical University of Munich	München, Germany	41	43	44
Heidelberg University	Heidelberg, Germany	42	44	47
Charité – Universitätsmedizin Berlin	Mitte, Germany	75	80	90
University of Tübingen	Tübingen, Germany	78	91	89
Humboldt University Berlin	Berlin, Germany	80	74	67
University of Freiburg	Freiburg, Germany	83	86	76
National University of Singapore	Singapore, Singapore	25	25	23
Nanyang Technological University	Singapore, Singapore	47	48	51
The University of Tokyo	Tokyo, Japan	36	36	42
Seoul National University	Seoul, South Korea	60	64	63

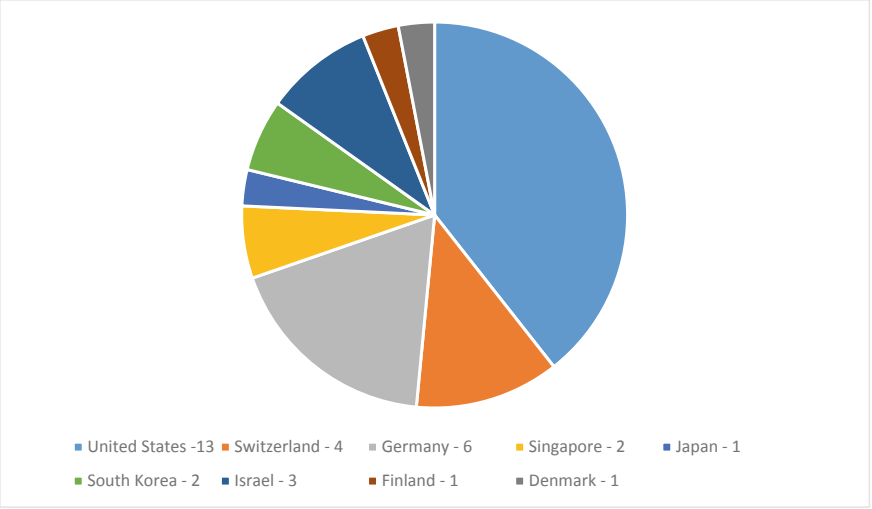
(continued)

[11] The World University Rankings: https://www.timeshighereducation.com/world-university-rankings/2021/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats.

Table 2 (continued)

		2021	2020	2019
Korea Advanced Institute of Science and Technology (KAIST)	Daejeon, South Korea	96	110	102
Tel Aviv University	Tel Aviv Yaffo, Israel	191	189	201
The Hebrew University of Jerusalem	Jerusalem, Israel	201	201	201
Technion—Israel Institute of Technology	Haifa, Israel	401	401	301
University of Helsinki	Helsinki, Finland	98	96	99
University of Copenhagen	Copenhagen, Denmark	84	101	116
University of Bologna	Bologna, Italy	167	168	180

Table 3 Number of leading universities on the basis of WUR 2021



graduates, leading-edge research, and dynamic technology transfer—can essentially be attributed to three complementary sets of factors (see Fig. 1) that play in top universities:

(a) a high concentration of talent (faculty and students);
(b) abundant resources to offer a rich learning environment and to conduct advanced research, and
(c) favorable governance features that encourage strategic vision, innovation, and flexibility and that enable institutions to make decisions and to manage resources without being encumbered by bureaucracy.

The first and perhaps foremost determinant of excellence is the presence of a critical mass of top students and outstanding faculty. WCUs are able to select the

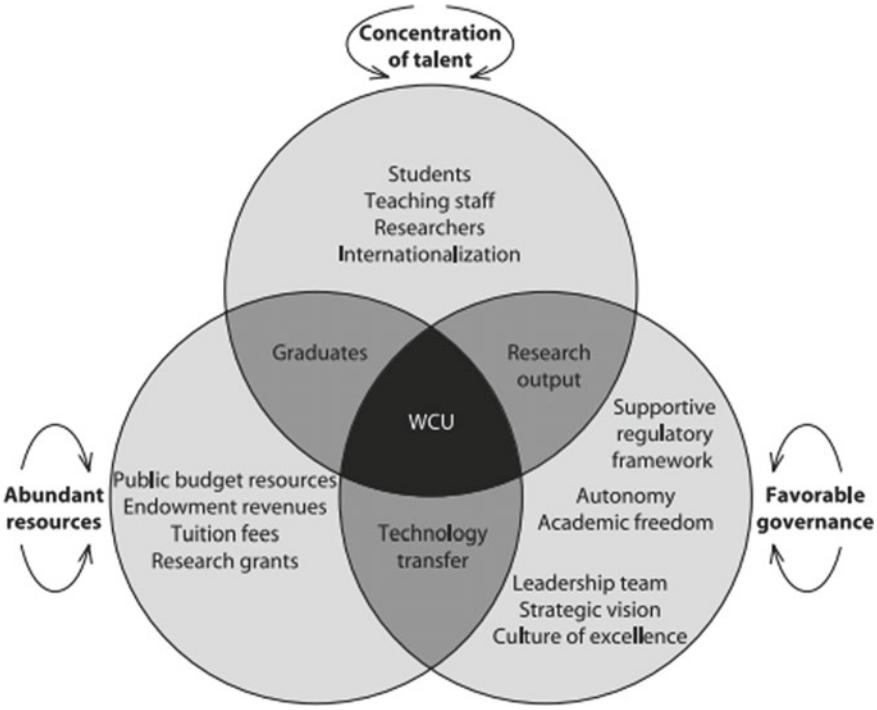


Fig. 1 Characteristic of World-Class University (WCU): alignment of key factors

best students and attract the most qualified professors and researchers, not only from the country where they are located but also internationally. For instance in Georgia many universities do not have luxury of selecting the best students as they are only oriented on filling quota.

Abundance of resources is the second element that characterizes WCUs, in response to the huge costs involved in running a complex, research-intensive university. These universities have four main sources of financing: government budget funding for operational expenditures and research contract research from public organizations and private firms, the financial returns generated by endowments and gifts, and tuition fees.

The third dimension concerns the degree of academic and managerial autonomy that universities enjoy. WCUs operate in an environment that fosters competitiveness, unrestrained scientific inquiry, critical thinking, innovation, and creativity. Institutions that have complete autonomy are also more flexible because they are not restricted by externally imposed cumbersome and bureaucratic rules and standards, even in light of the legitimate accountability mechanisms that do bind them. As a result, they can manage their resources with agility and quickly respond to the demands of a rapidly changing global market. These autonomy elements are necessary, though not sufficient, to establish and maintain world-class universities.

Other crucial governance features are needed, such as inspiring and persistent leaders; a strong strategic vision of where the institution is going; a philosophy of success and excellence; and a culture of constant reflection, organizational learning, and change.

2.2 Digital Transformation as One of the Prerequisite for Creating Innovative and Creative Environment in Higher Education Sector

Due to the fact that aforementioned paper is oriented on identifying pathway for elaborating culture of innovation and creativity at universities and revealing values and attributes that is needed for it, it's also important to mention digital technologies as well as they are playing crucial role on the way of transforming people's life, business and society. Higher education systems and institutions are particularly affected by digital transformation, which can enable new services and provide new opportunities for innovation and entrepreneurship. HEIs embracing digital technologies can become drivers of growth and development for their own ecosystems.

Digital transformation is the result of digitization and digitalization of economies and societies (OECD, 2019a). Some authors consider digital transformation as a more pervasive set of changes that digital technologies cause or affecting all aspects of human life (Stolterman & Fors, 2006). The digital transformation is intrinsically connected to what has been defined as the "fourth industrial revolution" (Schwab, 2016): a process through which digital technologies are shaping the future of society and economic development in a comparable manner to the case of steam power for the first industrial revolution.

Digital transformation is a process involving several digital technologies, from 5G to artificial intelligence, big data and Blockchain. These technologies form an ecosystem through which future economic and social changes will arise (OECD, 2019a). In particular, experts identify three categories for seven "vectors of digital transformation" (OECD, 2019d) (Fig. 2).

Academics and more generally people working in or with HEIs are becoming increasingly aware of these transformations. For instance, there is a strong positive sentiment about digitalization from the perspective of scientists and researchers concerning the promotion of collaboration and the efficiency of scientific research. However, scientists have more reservations about the role of private sector engagement, the impact that digital technologies may have on the inclusiveness of research opportunities and the engagement with the public. Based on these, the digital transformation and capabilities dimension within the HEInnovate framework could support and enable a better understanding of how digital technologies can be used to support innovation and entrepreneurship in HEIs.

Digital transformation is affecting and changing significant aspects of education, research, engagement and management activities of HEIs. The education system as a whole is called to adapt and evolve to take advantage of new technologies and tools

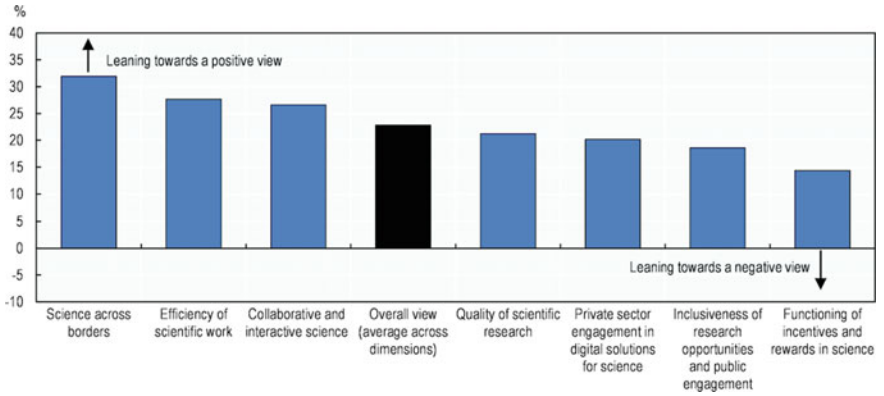


Fig. 2 Scientific Authors' view on the digitalization of science and its potential impact, 2018. *Source* OECD (2018), *International Survey of Scientific Authors (ISSA) 2018*, Preliminary Results, http://oe.cd/issa (accessed on 15 January 2019)

and to develop strategies and actions to play an active role in the digital transformation process. HEIs can become the driver of digital innovation, including in the provision of the types of skills generally needed to navigate this change of paradigm.

For HEIs, dealing with digital transformation means introducing new digital processes in their organizations, adopting new digital teaching methods and tools, helping students in achieving the skills and competencies needed to act in digitalized societies and economies or having open science policies. It also means adopting a broader view of their role as actors of digital innovation. HEIs, with adequate policies and support from the government, can have an important role in helping firms, in particular small- and medium-sized enterprises (SMEs), adopt emerging technology and acquire relevant digital skills for their workers (OECD, 2019a). Start-ups and spin-offs can benefit from partnerships with HEIs in order to acquire the initial know-how, equipment and funding to test new technologies and scale-up new products and services linked to new the research results in the digital field (OECD, 2019a).

The digital transformation process then becomes an element actively supporting innovation in all HEI missions, including the third mission in all of its dimensions. This implies a dual perspective: the one internal to the organization with the digital transformation of HEIs themselves, with a new mindset taking into account the challenges and opportunities brought by digitalization and new digital processes supporting students, staff and researchers; and the one external to the HEI with the enabling role that HEIs must play to foster digital innovation and support a wider ecosystem formed by firms, institutions and stakeholders, jointly pursuing the effort of innovation and growth through the means of new innovative digital technologies.

3 Digital Skills, MOOCs and Open Science

Digital skills are crucial to navigating today's technology-dense society and economy. However, OECD Survey of Adult Skills (PIAAC) (2012–15) data show that 13% of 16–65 year-olds in many OECD countries lack basic cognitive skills and less than 30% have a cognitive skillset combining high levels of literacy, numeracy and problem-solving skills. Younger generations of workers have a higher level of skills for problem-solving in technology-rich environments, five times more than the older generations of workers. Continuous training and upskilling are necessary to thrive in digital transformation (OECD, 2019b). These figures show the central role of education and higher education as enablers of the digital transformation.

MOOCs stands for "massive open online courses" and represents a new opportunity for digital learning that has developed in recent years. Dedicated Internet platforms provide users with access to MOOCs. Usually, the access is free and students can pay if they want the certificates recognizing their enrolment and acquisition of knowledge related to the courses. MOOCs are also used by companies for workers' skills acquisition, with specific training developed ad hoc for these purposes.

"Open science" is a term that refers to the process of making the output of publicly funded research widely accessible to the public (scientific community, business sector and society at large) through the use of digital technologies. Science has an old tradition of openness and, together with the new digital technologies, its actors have created the new paradigm of the scientific enterprise. The main elements of open science are: open access to scientific publications and open data (OECD, 2015).

3.1 Conclusion/Recommendations

The rapid development of the world needs innovative universities to rethink their value orientation. Based on traditional functions and responsibilities, innovative universities should engage in adding **value through innovation**. They should not only have the **capacity to compete for resources**, they should, more importantly, have the **capacity to consolidate high quality resources and to effectively give full play to add value and achieve excellence through innovation** that will enable them to build collaborative innovative environment based on stable goals where individuals will have the autonomy to pursue experiments and develop and maintain world class status.

On the basis of all above mentioned Georgian universities are needed to be focused on changing their value orientation too. They should be oriented on elaborating innovative and creative environment at universities that will enable their members to think in innovative way and acquire world class status at global level, for which *a holistic approach* is required, where all factors (discussed in the paper) will be jointly considered on the way of establishing Model of Culture of Innovation and Creativity at Universities as Prerequisite for their Performance.

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Digital Transformation in Education_Self-study System "Cyber3s"

Tea Munjishvili, Zviad Sigua, and Teona Shugliashvili

Abstract At the end of the twentieth century, revolutionary shifts in Information Technology changed the way in which old, practically approved knowledge could be assimilated, identified, and effectively solved. Digital transformations are one of its demonstrations. An integral part of digital learning is the intelligent computer systems of knowledge acquisition, control and assessment. The computer system for knowledge acquisition, control and assessment developed by us is a combination of Cyber 3 web applications: Cyber 3S (Kiber3S.tsu.ge), Cyber 3SE, Cyber 3T, Cyber 3E, Cyber 3A. An effective way of using Cyber3 is achieved by the combined method—creative processes are mastered in the traditional way, and knowledge of the technique, problem-solving techniques and technology is mastered, identified and evaluated by a computer system. The purpose of "Cyber 3S" is to master the subjects provided in the curriculum independently, remotely in self-learning mode. Here the subject is taught by selecting the topics and certain tasks and tests by students. In Cyber3S it is possible to present a task/test with text, image and video. An integral part of the knowledge base of Cyber 3S is so-called "Reminder" as an assistance dealing with the task/test in the form of text or graphics or video or any combination of them, also, present the thematic assistance in the form of Pdf file as well as recommend advice when giving a wrong answer to a test. Cyber 3SE provides self-monitoring of issues mastered by Cyber 3S. It is a trial rehearsal for the exam. In Cyber 3SE as opposed to Cyber 3S: First—The self-examination trajectory changes according to the results of solving the assessment criteria selected by the student, in particular, if the assessment criterion is satisfied as a result of solving the given difficulty, the system automatically shifts the student to the next level of difficulty. Second—it is impossible for a student to stop self-examination at any time and solve problems according to the principle of difficulties as desired. Third—the teacher envisages obtaining a self-control protocol for conducting the debriefing. In Cyber3S, the student can: display the protocol describing the teaching process in the

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Excel environment on his/her computer, the test provides 3 correct answers out of 7 possible answers, the number of answers to the task is not limited. Answers can be represented by a number, a sentence written in natural language.

Keywords Digital · Education · Innovation · E-learning · Self-study system · Cyber3s

1 Introduction

In the pandemic times, the authors believe that many subjects need to be studied remotely using the simulation method and training simulators. In the article only one part of the training course "financial analysis"—Cyber 3 is considered. The computer system for knowledge acquisition, control and assessment developed by us is a combination of Cyber 3 web applications: Cyber 3S (Kiber3S.tsu.ge), Cyber 3SE, Cyber 3T, Cyber 3E, Cyber 3A. An effective way of using Cyber3 is achieved by the combined method—creative processes are mastered in the traditional way, and knowledge of the technique, problem-solving techniques and technology is mastered, identified and evaluated by a computer system.

The simulator FINSIM_PRO2021 software package consists of management and simulation software. The management software selects the working language of the system, identifies the user, selects the standard model, and starts working with the program. The simulation software provides the simulation to select the optimal option in different modes etc. Fig. 1.

The software package is presented with two functional blocks. The first is the administrator and the second is the user (training) functional block. With the Administrator functional block it is possible to: add (edit) an enterprise, enter or edit or delete actual data; edit the text of the simulator brief and de facto description and arguments, develop a specific economic-mathematical model for the enterprise selected according to the system's standard models.

User (training) mode is training mode. In this mode: **First**, investigate the impact of changing the arguments in the selected model on the model of the model enterprise on the significance of the integral indicator of the financial sustainability assessment of the enterprise—Z. Determine the specific share of the argument, form the value of Z by changing the value of all, two, and one arguments involved in its calculation. In this case, data on coefficients and arguments are given; **Second,** the example of a

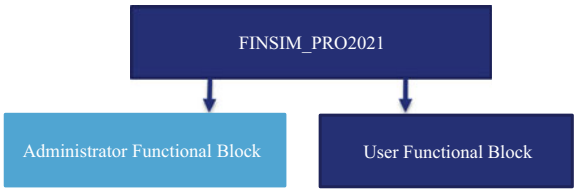

Fig. 1 FINSIM_PRO20 21 functional modes

virtual enterprise realizes the tasks set in the first case, with the difference that the student (user) selects the values of the arguments.

The structure of the software package for the Administrator functional block is the following Fig. 2. When running in Administrator mode, after the program is called, a window with the administrator's personal number, password, and a working language selected in the appropriate fields will appear Fig. 3.

After entering user login and password a window with menu row will appear Fig. 4 with the help of which work connected with the creation of the database is carried out:

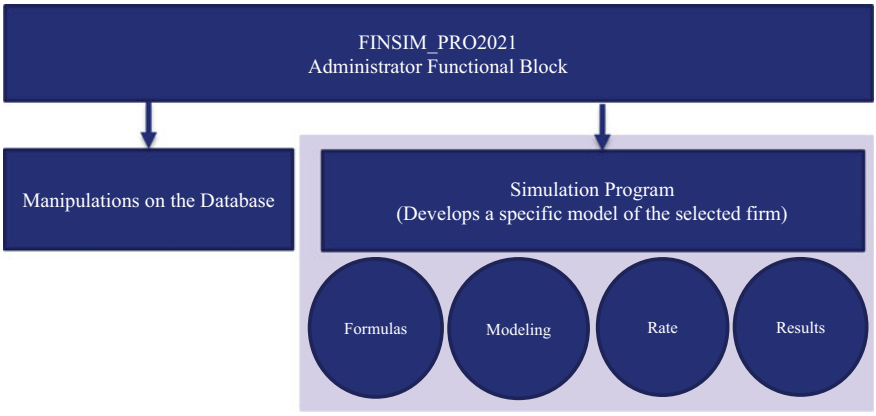

Fig. 2 Administrator functional block software package structure

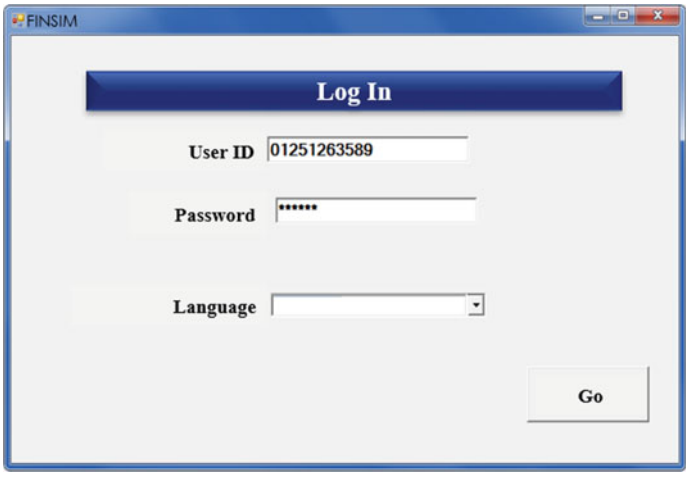

Fig. 3 User identification and selection of working language (selected language Georgian)

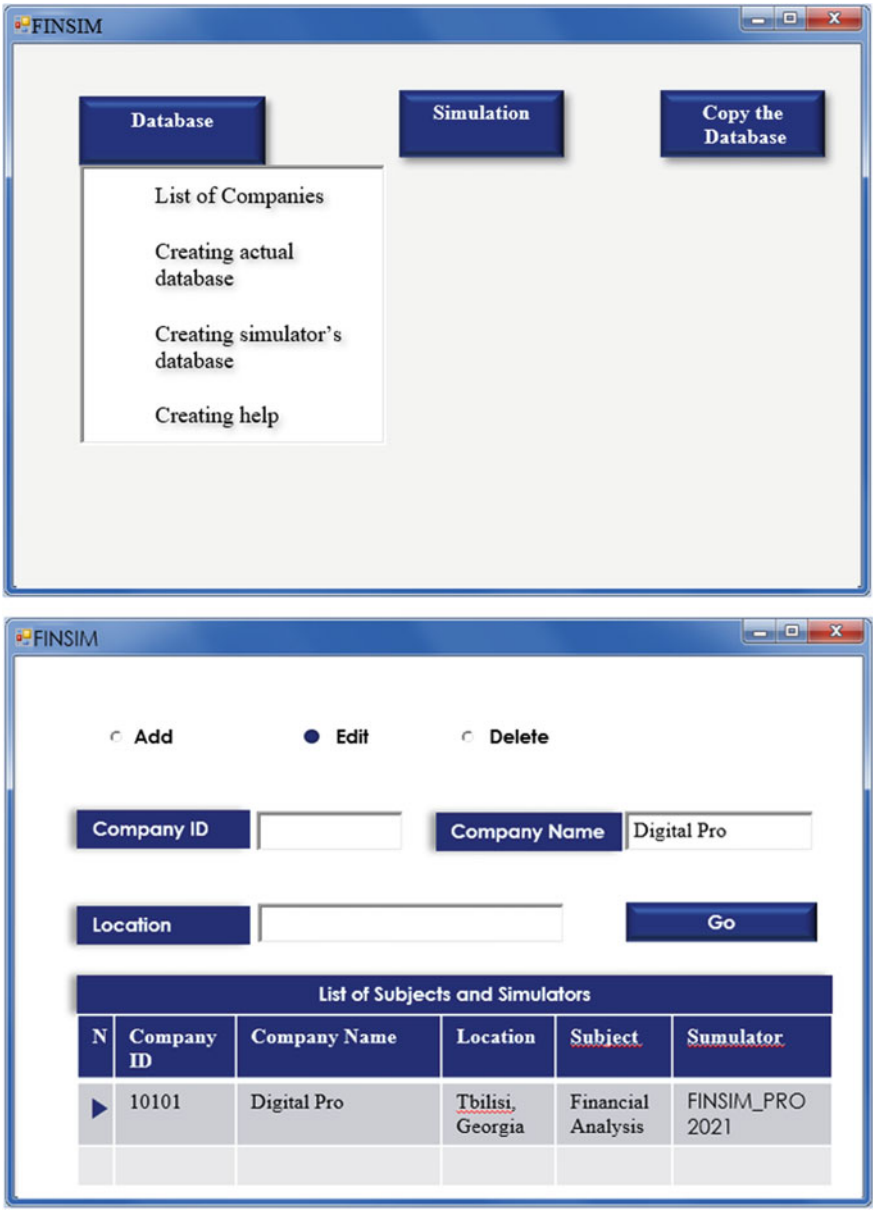

Fig. 4 Menu row

In the Menu row we select Database, click the List of Companies and Enter the company's Name, ID or location for finding it.

- Formation of the actual database Fig. 5.
- Creating a base of support with simulator workbench is carried out on a line "create support" in a dialog window. Assistance is created according to the models in the system. Any help is provided by either text or graphics or video or a combination of them: with text and graphics, or text and video, or graphics and video.

Only the administrator can develop a specific model of financial sustainability and bankruptcy forecast for the selected enterprise.

The purpose of the programs involved in model development is as follows:

- **Formulas**—The purpose of the program is to display the formula for calculating Z in the simulation window;
- **Modeling**—At the expense of changing the coefficients for the mean value of the arguments calculated from the actual data, many of the variants of the set Z we have set are calculated as actual, minimum, maximum and minimum and maximum values of Z. The variants vary in the values of the coefficients. Many options can be obtained using linear or nonlinear optimization methods. In the

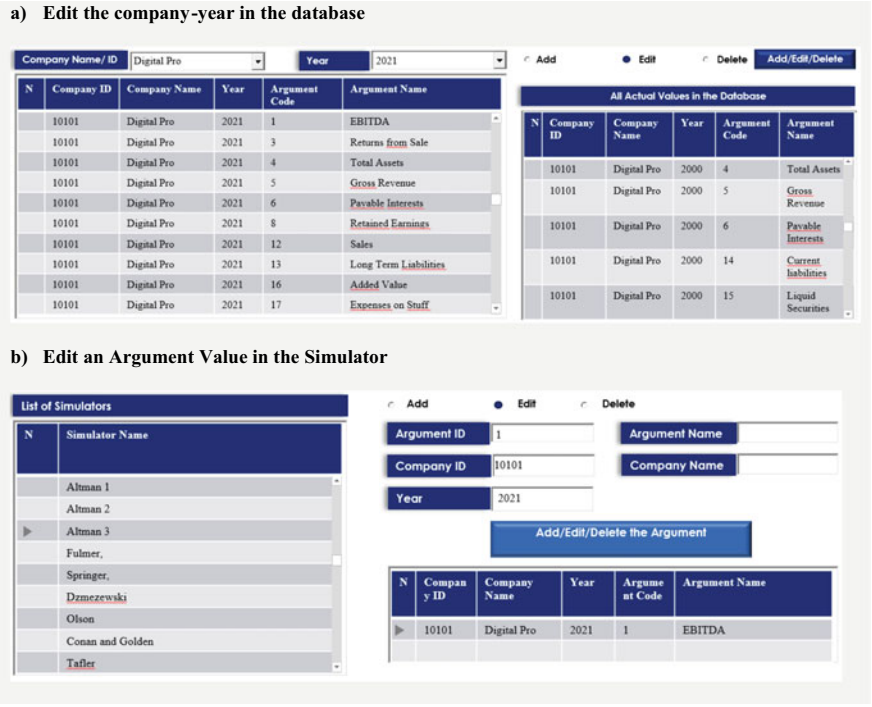

Fig. 5 Formation of base of simulators. Selected from standard models Altman3

Fulmer and Olson models, nonlinearity is used, and in the rest, linear optimization is used. An integral part of modeling is the solution procedure. It transmits the parameters through the optimization method to the extraction procedure—the Solver program;

- **Evaluation**—After selecting one of the many variants obtained, the coefficients Z are chosen by years, which are compared with the benchmark coefficients of the selected model coefficients;
- **Result**—Provides reports for every year or years selected.

The structure of the user (training) functional block software package is as follows

Anyone can work in training mode. Client identification serves the purposes of statistics. The purpose of managing programs is understandable.

"Simulation programs" consist of the following applications: **formulas**, **solutions**, **modeling**.

Formulas—The purpose of the program is to display the formula in the simulation window;

Solution—the program generates the optimal variant in both modeling options. **First**—selecting the optimal variance of the coefficients included in the simulator (model) by means of factual data arguments based on factual data or i-year; **Second**, modeling the actual data of the enterprise according to the selected coefficients variance. This program is called a "**modeling**" program.

Modeling—Here, we calculate the desired values and many options between the actual, minimum, maximum, minimum and maximum values of Z in all modes of the coefficients simulation. Here we solve linear and nonlinear optimization tasks. In the Fulmer and Olson models, nonlinear optimization is used, while in the rest, linear optimization is used.

At various stages of working with the modeling program, programs are called Fig. 6.

The program **option** generates many variants of the Z values. The **rules** of the program are presented in a multivariate plan to assess the financial position of the enterprise at the significance of Z. **Animation** programmatically achieves animation and sound effects. The following notes are included in the program for animation and sound effects: the enterprise is financially stable or the probability of bankruptcy is low—1; financial situation is critical or bankrupt or going to bankruptcy or probability of bankruptcy exists—2; the situation is uncertain—3; the probability of bankruptcy is high—4. Any situation fits a certain picture. Description of the situation. Except for the picture. It will also be received in English.

The program **result** provides a general overview of the modeling results. First, the modeling results are presented in terms of coefficients and actual values.

The **visuals** are provided with a program to display the modeling results in a table. The program **chart** is a graphical representation of the modeling.

We can use the Solver and Scenario Manager programs in Excel to solve the optimization task and form a multivariate plan.

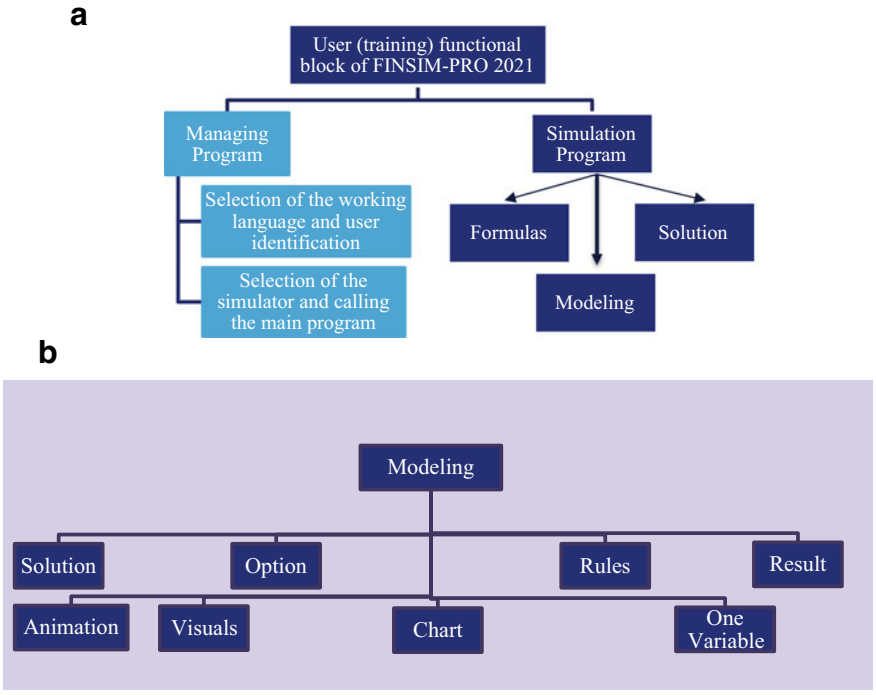

Fig. 6 **a** Structure of FINSIM_PRO2021 user (training) functional block software package. **b** "Modeling" structure of FINSIM_PRO2019 programs

The economic-mathematical model of financial estimation for a given enterprise is selected from a lot of variants of Z-values with logical-probabilistic modeling of the program of estimation and it will be a guide.

After logical probabilistic modeling at any stage of an enterprise's financial sustainability assessment and forecasting model or modeling, one model can be possible with one variable. The purpose of the modeling is to find out which of the multiples of N arguments have a high weight in the Z coefficient. For this purpose:

- Highlight 'one-variable modeling';
- Click the "One variable" button.
- After clicking the button, a window to indicate the steps for changing arguments will appear

After specifying the arguments change step, the system sequentially changes the value of the $n_i \in N$ argument when the rest of the arguments are constant $n_{i+1} \in N =$ Const. Modeling with one variable determines the specific share of each argument—the weight in the value of the Z coefficient. Obviously the weight of the argument depends on the model. It is not isolated from the rest of the arguments. The modeling result is visualized on a form chart. The results of modeling one variable in different

Name of the Simulator	Z	Argument's Name	Value
AltmanSabato	0.9941	Net Profit	39
AltmanSabato	0.9862	Net Profit	24
AltmanSabato	0.9862	EBITDA	37
AltmanSabato	1.0237	Interest Payable	29
AltmanSabato	0.998	Owner's Capital	42
AltmanSabato	0.998	Owner's Capital	27
Altmann 1	0.9627	Working Capital	47.667
Altmann 1	0.9262	Working Capital	32.667
Altmann 1	0.9568	Net Profit	33.333
Altmann 1	0.8987	Gross Profit	62
Altmann 1	0.7966		47
Altmann 1	0.6952		32

Fig. 7 Calculating the weight of arguments with different models

models are presented in an integrated table. In the integrated table, the modeling results are presented with naming arguments, modifying Z and simulating Fig. 7.

As mentioned, the simulation objects are the models of Altman, Altman-Sabato, Fulmer, Springer, Dzmezewski, Olson, Conan and Golden, Tafler, Liss, Chasser, Lego (14 models in total). The work in Tab. 1 shows only the economic indicators used in the Altman3, Springeit, Taffler models. Table 2 shows the values used by the simulators. The table in the column "Arg. №" The conditional sequential number of the written argument, which is referred to as $X1, X2, \ldots$ in the formula for calculating Z in this model. Shows the formulas for calculating Z in the selected simulation models with their coefficients (Table 3).

In this table the column № shows the coefficient number used in the model, in the column "Value 2" so called Standard values used in the model are recorded, in the column "Value 1" are the values we searched for with the coefficient FINSIM_PRO2021 before the implementation of the modeling step, while the values for the coefficient quoted as a result of the "Value 3" modeling. They form the basis of the model for predicting the financial sustainability and bankruptcy of an enterprise developed as a model. Notice the value of b1 coefficient in Altman3 is 6.56 changed to 3.56, b4 coefficient is 1.05 to 16.9053. The coefficients obtained from the modeling are as follows: $b1 = 2.85$; $b2 = 2.853$; $b3 = 0.579$; $b4 = 4.361$.

The general picture of the connections between the tables in FINSIM_PRO2021 is as follows Fig. 8:

2 Conclusions and Recommendations

The article discusses the development of an economic-mathematical model for the evaluation of an enterprise's financial sustainability and bankruptcy forecasts using a simulation method. The work is interesting in several aspects:

Table 1 Formulas for calculating Z in selected models of simulation

Model name	Calculation of $\boldsymbol{Z}$ coefficient
Altman's five-factor model for non-manufacturing industries – **Altman3**	$Z = \frac{6.56X_2+3.26X_3+6.72X_4}{X_1} + \frac{1.05X_5}{X_6}$ is where: X_1 - Assets Total (Balance Sheet); X_2 - Working capital; X_3 - Retained earnings; X_4 - Profit before tax; X_5- Equity (equity); X_6- All obligations
The Springgate model—**Springeit**	$Z = \frac{1.03X_2+3.07X_3+0.4X_4}{X_1} + \frac{0.66X_5}{X_6}$ Where: X_1 - Total assets (balance sheet currency); X_2 - Working capital (net equity); X_3 - Profit before taxes and% payment; X_4- Extracts from Realize-C; X_5 - Profit before tax; X6- Current liabilities
Tafler's model—**Tafler**	$Z = \frac{0.18X_2+0.16X_3}{X_1} + \frac{0.53X_4}{X_2} + \frac{0.13X_5}{X_6}$ Where: X_1 - Total assets (balance sheet currency); X_2- short-term liabilities; X_3 - Extracts from Sales; X_4- Profit from sales; X_5- Working capital; X_6 - Short + Long Term Liabilities

Table 2 Rules for estimating Z

Simulator name	Rules ofrate Z
Altman3	$Z \leq 1.1$— Enterprise is very likely to go bankrupt
	$Z > 2.6$— The situation is unstable. The enterprise can go bankrupt
	$1.1 \leq Z \leq 2.6$- Bankruptcy probability is low
Springeit	$Z > 0.862$ The financial position of the enterprise is critical. Forecast accuracy is 92.5%
Tafler	$Z < 0.2$— Bankruptcy probability exists;
	$Z > 0.3$— Enterprise is financially sustainable

1. The article analyzes the mathematical methods and algorithms used in the estimation of financial sustainability of an enterprise, such as: Altman's model, Olson's model, statistical methods known as "scoring" and others; Calculate the values of the coefficients of variables in all models by processing statistical data; The advantages and disadvantages of practical models are discussed; It has been shown that for many years in transition economies (for example, Georgia) there is no statistical data on enterprise bankruptcy, so the constant use of these types of models does not produce the desired results. In addition, Altman et al.'s models

Table 3 Coefficients used in the models

Simulator	№	Value 1	Value 2	Value 3
Altman3	1	3.56	6.56	2.85
Altman3	2	3.26	3.26	2.853
Altman3	3	6.72	6.72	0.579
Altman3	4	16.9053	1.05	4.361
Springeit	1	1.03	1.03	NULL
Springeit	2	3.07	3.07	NULL
Springeit	3	0.4	0.4	NULL
Springeit	4	0.66	0.66	NULL
Tafler	1	0.53	0.53	NULL
Tafler	2	0.13	0.13	NULL
Tafler	3	0.18	0.18	NULL
Tafler	4	0.16	0.16	NULL

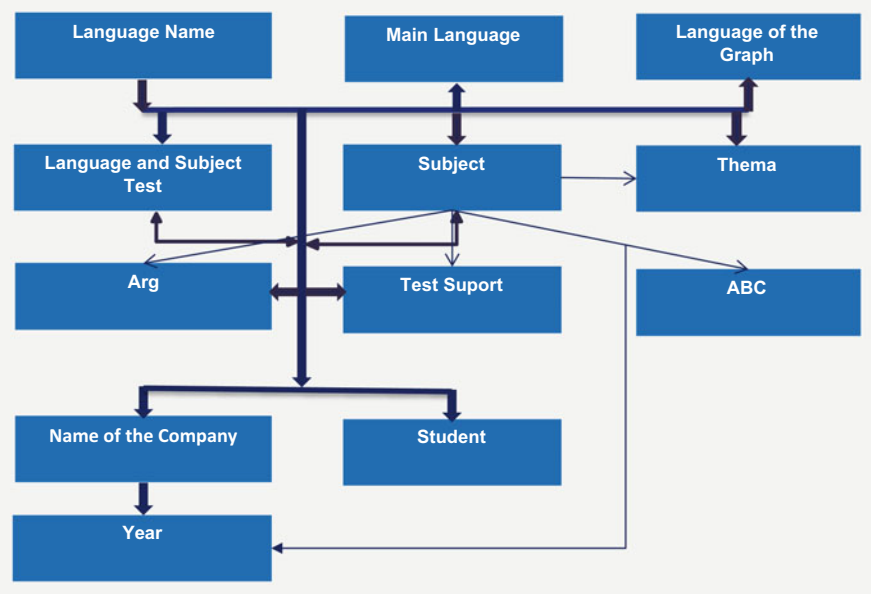

Fig. 8 Connections between tables in FINSIM_PRO2019

are mainly for industrial enterprises focused on specific countries or groups of countries. Their use in conducting financial analysis of Georgian enterprises is problematic.

2. It is proved that it is advisable to select from a plurality of models of financial sustainability and bankruptcy forecasts in the simulation mode and to develop a

specific model for the given enterprise that is different from the standard model coefficients;

3. From the mathematical models used in economics, the feasibility of using a logical-probabilistic modeling approach to evaluate the financial condition of an enterprise is selected and substantiated. It is proved that after adopting many variants of the enterprise financial sustainability model, the optimal option is selected using our developed logic-probability model;
4. The simulator we developed with FINSIM_PRO2021 can:

    a. Model an enterprise's financial sustainability model with Altman, Springer, Fulmer, Bzezinski, DuPoin models. With these models, the firm's financial sustainability assessment is performed with one and more (all included in the model) variables;

5. Using any simulator, including FINSIM_PRO2021, is not a panacea. It is one of the ways to delve deeper into the issue. Here the effect of using a simulator is achieved with the use of a properly designed electronic manual and computer simulator;
6. An integral part of the simulation is debriefing and analysis of results. With the simulator, FINSIM_PRO 2021, the teacher will receive a training protocol for simulating group debriefing.

    a. Essential requirements for teaching, research, and real-life use of FINSIM_PRO2021 by a student, management specialist:

        - Understanding the principles of simulator operation;
        - Creative knowledge of the realization algorithm of the problem that is being simulated;
        - interpretation of simulation results;
        - Adjustment of simulation results by taking into account the factors provided by the simulator;
        - Justification/rejection of simulation results.

    b. The student is required to explain the results of the simulation on a practical lesson. An integral part of the simulator is learning, mastering and dealing with simulation issues.

7. It should also be noted that, similar to electronic diagnostics, no matter how perfect the situation model is, adequate real-world modeling is practically unacceptable. So the final word is up to the decision maker and he/she is responsible for making the decision;
8. FINSIM_PRO2021 Can Be Used:

    - To train specialists in different countries with a common legal area, including Georgian higher education institutions;
    - To train specialists in management: economists, financiers and others;
    - In the process of managing enterprises.

9. The Software Package for FINSIM_PRO2021 is Written on VB.NET, the Database is Hosted on SQL Server.

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