Mehmet Huseyin Bilgin
Hakan Danis
Ender Demir
Chi Keung Marco Lau   *Editors*

Innovation, Finance, and the Economy

Proceedings of the 13th Eurasia Business and Economics Society Conference

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Preface

We are excited to organize our 13th conference on June 5th, 6th, and 7th, 2014, at Istanbul Bilgi University in Istanbul, Turkey. We are honored to have received top-tier papers from distinguished scholars from all over the world. We regret that we were unable to accept more papers than we have. In the conference, 278 papers were presented and 518 colleagues from 62 countries attended the conference.

We are honored that distinguished researchers **Cheng Hsiao** (the *University of Southern California*, USA) and **John Rust** (the *Georgetown University,* USA) joined the conference as keynote speakers. **Professor Hsiao** presented a keynote speech entitled *"Panel Data Analysis: Advantages and Challenges,"* and **Professor Rust** made a speech entitled *"Can the Job Market for Economists be Improved?"*

In the conference, we organized an invited session in which **Peter Rangazas** (*Indiana University-Purdue University Indianapolis*, USA), **Euston Quah** (*Nanyang Technological University*, Singapore), and **Tatarkin Alexander Ivanovich** (the *Ural Branch of Russian Academy of Sciences*, Russia) participated. In addition to the invited session, we also organized a special session entitled *"Challenges for Central Banking and New Policy Experiences of the Central Banks in the Global Economy"* with the participation of **Lokman Gunduz** (the *Central Bank of the Republic of Turkey*, Turkey), **Ad van Riet** (the *European Central Bank*, Germany), **Ahmet Faruk Aysan** (the *Central Bank of the Republic of Turkey*, Turkey), and **Khalid Rashid Al Khater** (the *Qatar Central Bank*, Qatar).

As expected, EBES conferences have been an intellectual hub for academic discussion for our colleagues in the areas of economics, finance, and business. Participants found an excellent opportunity for presenting new research, exchanging information, and discussing current issues. We believe that our future conferences will improve further the development of knowledge in our fields. In addition, based on the contribution of the paper to the field, the *EBES Award Committee* has selected one of the papers for the **Best Paper Award**.

We would like to thank our sponsors, the *Central Bank of the Republic of Turkey* and *Istanbul Economic Research Association*, for their generous financial support and valuable collaboration. And also, we would like to thank to *Istanbul Bilgi*

University for their great hospitality. Finally, we would like to thank all presenters, participants, board members, and keynote speakers and are looking forward to seeing you all again at the upcoming EBES conferences.

Best regards,

Istanbul, Turkey   Ender Demir

Eurasia Business and Economics Society (EBES)

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

EBES aims to bring worldwide researchers and professionals together through organizing conferences and publishing academic journals and increase economics, finance, and business knowledge through academic discussions. To reach its goal, EBES benefits from its advisory board which consists of well-known academicians from all around the world. Last year, with the inclusion of new members, our advisory board became more diverse and influential. I would like to thank them for their support.

EBES conferences and journals are open to all economics, finance, and business scholars and professionals around the world. Any scholar or professional interested in economics, finance, and business around the world is welcome to attend EBES conferences. Starting from 2012, EBES organizes three conferences every year: One in Istanbul (possibly in the early summer) and two in Europe or Asia (possibly in January and in fall).

In 2011, EBES began publishing two academic journals. One of those journals, *Eurasian Business Review—EBR*, is in the fields of industry and business, and the other one, *Eurasian Economic Review—EER*, is in the fields of economics and finance. Both journals are published biannually and we are committed to having both journals included in SSCI as soon as possible. Both journals are published by *Springer* and currently indexed in the *Cabell's Directory, Ulrich's Periodicals Directory, RePEc, EBSCO Business Source Complete, ProQuest ABI/Inform*, *IBSS: International Bibliography of the Social Sciences*, and *EconLit*. In 2011, EBES also started to publish the *EBES Anthology* annually to give opportunity for the papers presented at the EBES conferences.

On behalf of the EBES officers, I sincerely thank you for your participation and look forward to seeing you at our future conferences. In order to improve our future conferences, we welcome your comments and suggestions. Our improvement is only possible with your valuable feedback and support.

I hope you enjoy the conference and Istanbul!

With my very best wishes,

Iftekhar Hasan

Contents

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How Polish Firms Use the EU Funds for Innovative Projects? Final Evaluation of Pomerania Region in Poland

Anna Golejewska and Damian Gajda

Abstract The key challenge for EU Cohesion Policy is to improve SMEs access to capital and innovation. The objective of the article is to analyse use of the EU Structural Funds for innovative projects in SMEs from Pomerania Regional Operational Programme (ROP) 2007–2013. The analysis is based on 119 projects granted by the Measure 1.2. In order to achieve the main objective of the paper, the following detailed objectives are expected to be met: description of conditions and rules of grants awarding, analysis of SMEs in Pomerania region and finally, analysis of granted projects. The results of the analysis confirmed significant diversity of total values of projects, awarded grants and branches. The funded projects were implemented mostly in manufacturing. There were no beneficiaries from section H and section I which are very important for Pomerania's economy. Most of the projects concerned implementation activity and only few of them were related to investment in R&D activity. More expensive projects and projects implemented in cooperation were more frequently financed with credit. In most cases firms have not declared employment growth. The research results should give recommendations for regional authorities on defining guidelines and implementing the Pomerania ROP 2014–2020.

Keywords Entrepreneurship • Regional innovativeness • EU Structural Funds

1 Introduction

In accordance with the Europe 2020 Strategy, countries and regions need R&D and innovation to create smart, sustainable growth and to get Europe out of the current economic crisis (Pasimeni 2012). Innovation needs public support oriented on collaboration among innovation stakeholders (Gray and Wood 1991; Roberts and

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Bradley 1991). One of them are SMEs which often have difficulty in accessing capital and knowledge, coping with structural changes in markets and frequently lack experience. The aim of EU Cohesion Policy is to tackle these difficulties using a combination of hard and soft measures. The first group of measures comprises direct support to investment. The second group includes: the provision of business support services, training, an innovative environment, financial engineering and technology transfer, as well as the support of networks and clusters.

One of the instruments supporting innovation in Pomerania region is the Pomerania Regional Operational Programme (ROP) 2007–2013. The grants support innovative projects in companies with a strong development potential, however the definition of innovation differs from the National Operational Programme Innovative Economy. According to OSLO Manual (Ministerstwo Nauki i Szkolnictwa WyzszegoDepartament Strategii i Rozwoju Nauki 2005), the definition at regional level comprises four types of innovations: product, process, marketing and organisational innovation, and is considered at regional/local level in innovative projects and at company level in case of investment projects (Urzad Marszalkowski Wojewodztwa Pomorskiego 2010). In contrast to the National Operational Programme Innovative Economy, there are no time restrictions in relation to the applied technology. It is possible to prove innovativeness of a project on the basis of branch reports, market analysis or manufacturers opinions. Innovativeness in the Pomerania ROP 2007–2013 can be treated as access criterion, which means that demonstration of innovativeness is a precondition for applying for grant (innovative projects) or as appraisal criterion in investment projects, where additional points are granted in evaluation of projects.

Empirical literature on effects of the EU Structural Funds in the new EU Member States is rather limited in comparison to the old Member States, particularly at regional level (Cieslik and Rokicki 2013). The aim of the article is to analyse use of the EU Structural Funds for innovative projects in SMEs from the Pomerania ROP 2007–2013. In the analysis we use the projects data from the Pomerania Development Agency Inc., the Intermediate Body II for the Pomerania ROP 2007–2013. In order to achieve the main objective of the paper, the following detailed objectives are expected to be met: description of conditions and rules of grants awarding, analysis of SMEs in Pomerania region and finally, analysis of granted projects, using statistical methods.

2 SMEs in Pomerania Region and Funds for Innovative Projects

The gap between Pomerania's development rate and that of the European Union continues to be wide. In 2009, the region's average GDP per capita (PPS) represented about 59 % of the EU-27 average. When compared with national macroeconomic indicators, the regional economy is relatively strong. In 2009, its

contribution to national GDP amounted to 5.7 % (seventh place in the country). The region's GDP per capita placed Pomerania fifth in the country, after Mazowieckie, Dolnoslaskie, Slaskie and Wielkopolskie. The spread between sub-regions in 2009 ranged from 71 % of the national average in the Gdansk sub-region to 141 % in the Tri-City sub-region (Glowny Urzad Statystyczny 2014). These differences have been on similar levels over the last few years (Zarzad Wojewodztwa Pomorskiego 2012).

Pomerania region has one of the country's most diverse economies. For decades the region has relied on maritime industries (shipbuilding, ship repairs, cargo handling, shipments, fisheries and fish processing, tourism) (Urzad Marszalkowski Wojewodztwa Pomorskiego 2010). Nowadays companies are operating in traditional and fast growing industries (ICT, chemical industry). There were 258,197 companies registered in Pomerania in 2011 and 265,033 in 2012 which makes 6.7 % of all companies in Poland. SMEs make up 99.9 % of all firms in Pomerania region. The most numerous are micro companies (95.7 %), followed by small- (3.5 %) and medium-sized enterprises (less than 1 %). Most of them are trading and motor vehicle repair companies (section G, NACE). There are also numerous construction (section F) and manufacturing (section C) enterprises. The remaining sections make up less than 10 % of all SMEs (Golejewska 2013).

Among industrial companies in Pomerania region, the share of those which have incurred outlays for innovative activities decreased from 19.1 % in 2008 to 15.5 % in 2009. In the same period, the share of service companies noted a fall from 12.7 to 9.6 %. In 2009, the highest expenditures on innovative activities per company were recorded in Pomerania region. The share of new or substantially modernised products in total revenues was the highest among Polish regions. In case of industrial companies, their share was above 23 % in 2008 and 28 % in 2009, in service companies—3.4 and 1.7 % respectively. Less than 25 % of innovation active enterprises were involved in innovation cooperation. In years 2007–2009 in innovation cooperation were involved 16.1 % of small, 30.5 % of medium and 51 % of big innovation active industrial companies and 11.7 % of small, 50 % of medium and 36 % of big innovation active service companies. In this period, only 1.7 % of innovation active industrial enterprises (6.4 % of total involved in innovation cooperation industrial companies) had agreements concerning innovation in cluster initiatives. In services, the shares amounted to 2.7 and 11.8 % respectively (Glowny Urzad Statystyczny 2010). In 2010–2012, innovation active industrial enterprises represented only 12.3 % and innovation active service enterprises −11.4 % of all enterprises in Pomerania region. In 2012, the share of new or substantially modernised products in total revenues in industrial companies amounted to over 36 % and was the highest in Poland. In the same year, the share in service companies was only 1.4 %. About 30 % of innovation active enterprises implemented cooperation on innovation, of which 16.4 % of industrial- and 30.2 % of service companies were cooperating in cluster initiatives (Glowny Urzad Statystyczny 2013).

While Pomerania's numerous SMEs have the necessary development potential, it remains largely underused because of their poor access to capital. If their

competitiveness is to be improved, they need investment support, particularly micro-companies in the region's structurally disadvantaged areas (Urzad Marszalkowski Wojewodztwa Pomorskiego 2010). An important role in financing innovation-related instruments play EU Structural Funds, available and managed at regional and national level. To use them, regions are requested to define priorities and design appropriate strategies, in particular regional innovation strategies. Regions are managers of Regional Operational Programmes supporting human capital and an innovative economy and based on priorities of regional innovation strategies. The Pomerania ROP involves Community support for Pomerania within the framework of "Convergence" objective. The programme has been funded under the European Regional Development Fund (ERDF) and the accompanying national co-financing. According to the division of the funds among 16 Regional Operational Programmes, the ERDF money for the Pomerania ROP represented 5.35 % of the total allocation of this Fund to 16 Regional Operational Programmes. The total value of the Pomerania ROP was about EUR 1.3 billion, of which the national contribution (public and private) represented above EUR 350 million. Funding to support the Lisbon Strategy objectives (earmarking) amounted to 48.5 % of all the Pomerania ROP funding. The ERDF allocation for priority axis one amounted to almost EUR 180 million (19.1 % of total allocation). The priority one comprised direct and indirect SME financial support instruments. Measure 1.2 "Innovative solutions in SME", which allocated over EUR 22 million, included projects involving research and technology development. Direct support was provided to new companies, set up as a result of innovation (including spin-off and spin-out) and for pro-innovation investments in existing companies. The Measure 1.2 co-financed:

1. acquisition of R&D results, intellectual property rights, including patents, licenses, know-how or other technical knowledge related to the implemented product or service;
2. exclusive rights (patents) for own technical solutions;
3. R&D activities in SMEs;
4. implementation of innovative manufacturing processes, products and services, organizational systems and market solutions, including implementation of R&D results;
5. implementation and commercialization of innovative products and services and product and technology platforms.

Preferred were projects with over-regional impact, which fitted in with the Pomerania Regional Innovation Strategy (RIS) and establishing partnerships with several organisations working together (Zarzad Wojewodztwa Pomorskiego 2012). Evaluated were purpose and involvement of the partners (organisational and financial). As preferred were regarded projects based on cooperation between enterprises and the R&D sector. In the evaluation process also the following criteria were examined: the introduction of interrelated: innovative products and innovative services, innovative products and innovative processes or innovative services and innovative processes (production, technological, organisational); contribution to energy and raw material efficiency and emission reduction, the use of

cross-financing, the relationship with other investment projects implemented in a company and solutions contributing to implementation of the principle of equal opportunities and non-discrimination (Zarzad Wojewodztwa Pomorskiego 2009).

3 Empirical Analysis

The analysis is based on 119 projects granted by the Measure 1.2 of the Pomerania ROP in three competitions. In the first one, with closing date for entries on 30 January 2009, over PLN 27 million (1 EUR ≈ PLN 4) were awarded to 24 companies. In the next competition with closing date on 23 November 2009, over PLN 39 million were divided among 49 applicants. In the last case with closing date on 29 February 2012, the allocation of PLN 22.5 million was divided among 46 applicants. The maximum support for a project run by a micro or small company could not exceed 60 % of eligible expenditures, and 50 % in case of a medium-sized company, in both cases no more than EUR 500 thousand (PLN 2 million). In the last competition, the maximum support has been reduced to 50 % for micro and small enterprises and to 40 % for medium enterprises. The maximum value of financial support was reduced by half (Golejewska 2013). There were no limits on minimum and maximum project value. The expenditures eligible for support in the Measure 1.2 were *inter alia* costs of transfer of ownership of land and building; costs of purchase or leasing of equipment; purchase costs of construction works and building materials; purchase costs of R&D results; intellectual property rights, including patents, licences, know-how and non-patented technical knowledge; and costs of obtaining a patent.

3.1 Analysis of Funded Projects

In the analysed competitions, 44 micro-, 39 medium- and 36 small-sized enterprises obtained co-financing. The distribution of projects by size of enterprise differs significantly from the distribution of enterprises in Pomerania region. It is particularly visible in case of medium-sized enterprises, which represented almost 33 % of all beneficiaries and only less than 1 % of enterprises in Pomerania region. Their share in total costs of projects and eligible costs is even higher. The total costs of co-financed projects amounted to over PLN 270 million, of which almost PLN 108 million concerned medium enterprises. To PLN 14 million less amounted costs of projects submitted by small enterprises. Micro-sized enterprises implemented the cheapest projects with the total value of PLN 68.5 million. The same is true for eligible costs with the highest share of medium- and the lowest share of micro-sized enterprises. A much smaller advantage attained medium enterprises in the amount of co-financing (35 %), which was a result of assumption adopted in the field of

Table 1 Co-financed projects: total costs and their structure, thousand PLN

Size of enterprise	Total costs of projects	Eligible costs	Grants
Micro	68,482	55,415	26,680
Small	93,739	72,745	32,192
Medium	107,914	86,268	32,700
Total	270,135	214,428	91,460

Source Own calculations based on the Pomerania Development Agency Inc. data

maximum support of the project. Table 1 presents the co-financed projects by size of enterprise.

The average share of eligible costs in total costs of projects in all three competitions amounted to almost 80 %. The highest share was in micro-sized companies—81 %, the lowest in small-sized enterprises—78 %. The highest funding received medium companies—on average 38 % of eligible costs, altogether almost PLN 33 million. A little less, above PLN 32 million received small enterprises (on average 44 % of eligible costs). Projects of micro-sized enterprises were supported by co-financing at the average level of 44 %. The differences in average funding level resulted from programming documents. Lower than maximal, average funding level was a result of preferences granted to projects, in which own contribution was higher than required in the Measure 1.2 of the Pomerania ROP.

Financial support varied from PLN 24 thousand to PLN 2 million. Enterprises have received on average PLN 768.6 thousand, however average values varied by type of enterprise. The highest grants have received small enterprises—almost PLN 895 thousand, followed by medium enterprises—PLN 838.5 thousand and micro-sized enterprises—almost PLN 604 thousand. The mean values were increased by the projects with maximum value of PLN 2 million (or close to it). For this reason the median value was significantly lower than the mean value. For all the granted projects the median value amounted to almost PLN 563 thousand (see Table 2).

There were even greater differences with respect to individual competitions (see Table 3). In case of the first competition, the average value of grant was over PLN 1 million. In the second competition companies have received on average PLN 0.9 million and in the last one about half less. Low values in the last competitions resulted from reduced maximum value of financial support to PLN 1 million.

Most of the projects focused on implementation activity. 64 out of 95 projects related to implementation of innovative manufacturing processes, products and services, organizational systems and market solutions, including implementation of R&D results.[1] 46 projects concerned implementation and commercialization of innovative products and services and product and technology platforms. Support to research and innovation activities was the subject of co-financing in only 19 projects and acquisition of R&D results, intellectual property rights, including patents, licenses, know-how or other technical knowledge related to the implemented

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[1] In the first competition, types of projects have been not considered.

Table 2 Co-financing by size of enterprise, descriptive statistics, PLN

Size of enterprise	Mean	Maximum	Minimum	Standard deviation	Median
Micro	603,812	2,000,000	24,175	578,153	402,750
Small	894,212	2,000,000	48,013	650,198	660,581
Medium	838,465	2,000,000	104,000	607,668	694,980
Total	768,567	2,000,000	24,175	623,632	562,981

Source Own calculations based on the Pomerania Development Agency Inc. data

Table 3 Co-financing by size of enterprise and competition, thousand PLN

Size of enterprise	Competitions					
	1		2		3	
	Total	Mean	Total	Mean	Total	Mean
Micro	10,638	1,182	10,068	592	5,861	326
Small	11,746	1,175	13,311	1,109	7,134	510
Medium	4,639	928	20,628	1,031	7,433	531
Total	27,023	1,126	44,007	898	20,428	444

Source: Own calculations based on the Pomerania Development Agency Inc. data

product or service in nine projects. There was only one project concerning exclusive rights for own technical solutions. In most cases, the projects met the criteria of a few project types. The funded projects are implemented in different sectors, with dominance of industrial production. 55 % of them are implemented in section C (manufacturing) which is very diversified. Numerous beneficiaries are also operating in section M (professional, scientific and technical activities) and section Q (health care and social welfare). Only 7 % of funded projects are implemented in section J (information and communication). Similar percentage of innovative projects concerned sections F and G (construction and commerce). The share of other sections remains marginal. There were no beneficiaries from section H (transportation and storage) and section I (hotels and restaurants) which is worth mentioning because of the fact that these sections are of great importance for Pomerania's economy.

Table 4 presents technological intensity of co-financed projects. Majority of manufacturing projects is implemented in medium-low- and low-technology industries (47 projects). Only 8 out of 65 classified projects are implemented in high-technology industries, mainly in manufacturing of precision electronic instrument and electronic devices. The remaining ten projects were implemented in manufacturing of food products, textiles and leather products. It is positive that, contrary to manufacturing, in services more than 80 % of projects relates to knowledge-intensive services (KIS). They are implemented mainly in IT, financial, medical and advertising services.

On the other hand, regions which are not innovation leaders should invest in branches, not necessarily high-tech, but with the greatest growth potential referred to as smart specialisation areas (Camagni and Capello 2013). In short, smart

Table 4 Technological intensity of co-financed projects

Manufacturing industries	Number	Services	Number
High-technology	8	Knowledge-intensive services (KIS)	34
Medium-high-technology	20	High-tech KIS	0
Medium-low-technology	27	Market KIS	0
Low-technology	10	Less knowledge-intensive services (LKIS)	0
		Market services less KIS	8
Total	65		42

Source Own calculations based on the Pomerania Development Agency Inc. data and Eurostat aggregation of manufacturing and services based on NACE Rev 1.1, Eurostat. *Eurostat indicators of High-tech industry and knowledge—intensive services, January 2014 Annex 2—High-tech aggregation by NACE Rev. 1.1*

specialisation is "about generating unique assets and capabilities based on the region's distinctive industry structures and knowledge bases" (Foray et al. 2012). Smart specialisation industries have been initially identified for Pomerania region but the number of co-financed projects implemented within them remains rather low (23). The largest number of innovative projects—six, are implemented in construction, mostly by small businesses involved in the construction of roads and the specialized construction, four in furniture industry, implemented mainly by medium-sized enterprises and three in ICT and sport, leisure and tourism each, implemented by micro and small enterprises. Unfortunately, there are no projects in business process outsourcing and transport and logistics, which are of great potential for development of Pomerania region.

Funds for co-financed projects are transferred from the EU and national budgets as pre-payment and reimbursement (Zarzad Wojewodztwa Pomorskiego 2011). Pursuant to the guidelines, one of the requirements to apply for a grant is a financial stability of the applicant. In accordance with the results, the minority of projects (36 out of 119) was financed with credit. In 14 cases the applicants were micro-sized companies. However, the use of credit facility with reference to total costs of project and eligible costs amounted to more than 50 % and in case of grants, to over 40 %. Projects financed with credit were characterized by 50 % higher total costs in comparison to projects financed solely with own resources. The results imply that companies with good financial standing rather do not need credit facility to finance their contribution, however the availability of bank lending for SMEs can be a significant driver of absorption of the EU Structural Funds, in particular in case of more expensive projects. The use of credit facility with reference to costs and co-financing presents Table 5.

Pomerania region comprises 16 counties, 4 county's cities and 123 municipalities (25 urban, 17 urban-rural and 81 rural). The region is divided into four sub-regions: Gdansk-, Slupsk-, Starogard Gdanski- and Tri-City sub-region. The region is largely urbanised, with over 67 % of population living in cities. It makes the region Poland's fourth most urbanised area. Development and land use are most intensive in the Tri-City metropolitan area on the Bay of Gdansk (Golejewska 2013). Pomerania region is characterised by a great diversity of economic development

Table 5 Use of credit facility, thousand PLN

Bank credit	Total costs of project		Eligible costs		Co-financing	
	PLN	Per cent	PLN	Per cent	PLN	Per cent
No	74,373	48	32,568	46	52,433	57
Yes	81,407	52	38,463	54	39,026	43
Total	155,780	100	71,031	100	91,459	100

Source Own calculations based on the Pomerania Development Agency Inc. data

Fig. 1 Geographical distribution of implemented innovative projects 2007–2013, the maximum number of projects in a county (*Source* Own calculations based on the Pomerania Development Agency Inc. data)

in its sub-regions. Differences in the number of companies, employment rate and average income are in particular visible at county level. The strongest is Tri-City sub-region and counties bordering it. In a weaker state are the areas of the former Slupsk and Elblag provinces, characterised by high unemployment rate and low wages. The results of analysis show high geographical concentration of granted projects in the Tri-City sub-region and counties bordering it, particularly in Kartuski (13 projects), Wejherowski (10 projects) and Gdanski (9 projects) districts. Also Bytowski district stands out positively among other counties with nine granted projects, of which eight in the last competition. The maximum number of projects in other counties did not exceed three. Figure 1 presents geographical

distribution of granted projects. Gdansk accounted for 40 % of total co-financing, followed by Gdynia—almost 17 % and Kartuski district—little over 10 %.

The vast majority of granted projects is implemented in the same county as firm's head office (100 out of 119). Micro-sized companies implemented their projects more often outside the county of their head office (25 % of all projects) and they more often declared an increase in employment in these projects (55 % of projects in comparison to 24 % of projects implemented in the same county as firm's head office). In general, implementation of projects was not related to employment creation, which was not a criterion of project evaluation. In 57 % of projects no single new job was created. On average, one project generated 1.5 of a full-time job. The number of jobs created in innovative projects is uneven. The greatest number of jobs was generated in Gdansk, Gdynia, Kartuski and Bytowski district, in total 137.25, representing 78.5 % of the total number of created jobs. The largest providers of employment were small enterprises.

In most cases firms applied single-handed. Though preferences given to partnership projects, on cooperation have decided only 21 applicants: 7 micro-, 6 small- and 8 medium-sized companies. This indicates that they rather carefully cooperate with external partners in implementing projects, which may result from misgivings that the partners will not meet their engagement and the project would not be completed. This tendency is worrying, in particular in the context of benefits of this kind of cooperation. There is sectorial and geographical concentration of projects implemented in partnership. Most frequently, partners were present in manufacturing (eight projects) and trade and repair (four projects). 13 out of 21 projects were implemented in the Tri-City sub-region. Most of the partnership projects focused on implementation of innovative manufacturing processes, products and services, organizational systems and market solutions, including implementation of R&D results. Much less frequently they were related to R&D activities in SMEs and implementation and commercialization of innovative products and services and product and technology platforms.

There is a correlation found between the implementation of projects in partnership and the use of credit facility. 60 % of projects implemented in partnership were financed with credit. It should however be noted that, pursuant to the guidelines, the partnership is not limited to the financial contribution but it relates also to technical and organisational support. As partners, preferred are the key cluster members and representatives of the research and development sector. Building business-university links is a difficult and long process which requires overcoming many multi-dimensional barriers. Despite relatively high potential of the research and development sector in Pomerania region, it is not sufficiently focused on business use. R&D teams often do not have practical proposals for cooperation which meet the expectations of entrepreneurs. The current level of spending on R&D also does not promote effective use of scientific potential of Pomerania region.

4 Conclusion

High impact on innovation activity of enterprises, particularly R&D activity, have factors related to shortage of financial resources, limited options of securing sufficient financing and development of own R&D infrastructures. Additionally, low development of innovation implementation system in Pomerania region limits the possibility to use it. A positive feature of Pomerania region is a relatively high, compared to the country, and steadily increasing share of the private sector in the financing of R&D (47.5 % in 2012). Although low percentage of Pomerania's firms implements innovation, those firms, which do it, achieve one of the best results in a country. Since 2006 Pomerania region is a leader in terms of the share of new or substantially modernised products in total revenues. Thus, in the region there is a potential and at the same time a need for funding for innovative projects.

The results of the analysis confirmed significant diversity of total values of innovative projects, awarded grants and branches. The majority of innovative projects have been implemented in manufacturing. Only a small part of them are in high-technology sectors that are very important for diffusion of innovation. A totally different situation is observed in services. Unfortunately, only a small part of projects related to investment in firm's R&D activity. Most of them focus on implementation activity. The changes in enterprises focus mostly on incremental innovations which change the scale of the firm but are not unique to the branch (which meets the definition of innovation in the ROP). In Pomerania region, enterprises refrain from cooperation when implementing innovative projects, which prevents from full exploitation of innovation capacity ofthe region. The results show high concentration of projects in Tri-City Agglomeration and adjacent districts, which confirms the role of agglomeration in promoting technology transfer and innovation. On the basis of the results it can be stated that companies with good financial standing finance their contribution rather using their own funds, however the availability of bank lending for SMEs can be a significant driver of absorption of the EU Structural Funds, particularly in case of more expensive innovative projects.

In the current EU programming period, support is directed to enterprises implementing innovative solutions, as well as to enterprises starting up or developing their R&D activity and cooperating with universities and scientific institutions (with an enterprise as a project leader). The Pomerania ROP 2014–2020 will also support new enterprises (start-ups) based on innovative solutions, including spin-offs and spin-outs, which will be financed through seed and venture capital. Beside the repayable instruments, the use of grants and mixed instruments is envisaged. As a rule, potential beneficiaries should be active in branches identified as regional smart specialisation areas (Zarzad Wojewodztwa Pomorskiego 2013). The experience of 2007–2013 programming period should be used in the current period. Definition of innovation at regional level in the ROP still needs further clarification. The decision-makers should implement instruments to support

cooperation between enterprises and representatives of the research and development sector and measures improving access of SMEs to bank lending.

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Competitive Intelligence Among SMEs: Assessing the Role of Entrepreneurial Attitude Orientation on Innovation Performance

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Abstract Competitive intelligence is regarded as a significant topic by many practitioners and academics due to its importance in shaping the organization's strategic decision making. Competitive intelligence is key in today's unstable global environment because it leads to creation of ideas and innovation. Two popular areas of study on competitive intelligence are defining what competitive intelligence is and assessment of the organization's intelligence capability. However, research on competitive intelligence as the foundation of strategic management is very much lacking. Furthermore, research on competitive intelligence practice among the SMEs are also scanty. There is a need to investigate the SMEs attitudinal factor motivation for competitive intelligence because these might influence the development of their attitude towards competitive intelligence in their daily business activities. Thus, the intention of this study is to review the literature on entrepreneurial attitude, competitive intelligence and innovative performance and to propose a conceptual model linking these three variables within the Malaysian SME context.

Keywords Competitive intelligence • Entrepreneurial attitude orientation • Innovative performance • SMEs • Entrepreneurship

1 Introduction

In recent years, the Malaysian SMEs sectors have soared in accordance with the global business development. The Malaysian government has always acknowledged the SMEs as the nation's backbone in attracting investment and also as a catalyst in transforming Malaysia into a developed nation by 2020 (PEMANDU 2012). The government has continuously provided various support which includes learning and development programs, funding, matching grants, and outreach programs to escalate the SMEs productivity (PEMANDU 2010).

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Nevertheless, the SME's performance is below the expected level and contributes to only 32.5 % of the country's GDP (Star Business 2013). One of the reasons, for this situation to prevail is that the Malaysian SMEs are falling behind in competitiveness and innovativeness. A survey conducted by the Dhurakij Pundit University Research Centre (DPURC) in 2011 on five ASEAN countries SME competitiveness, ranked Malaysia fourth among the five. Previously, Malaysia was leading among the five countries (Thongtep 2012).

The 2014–2015 Competitive Index chart ranked Malaysia at 20th in terms of competitiveness and at 32nd on the 2013 Global Innovation Index for innovativeness (Benavente et al. 2013; Schwab 2013). From these rankings it is obvious that the Malaysian SMEs must invest in innovation to stay relevant in today's global economy. Thus, the SMEs survival and progress today depend highly on their innovativeness, creativity, technology, knowledge, competitiveness and entrepreneurship (Montaño et al. 2011).

In the western hemisphere and East Asia, Competitive Intelligence (CI) is being heavily utilized by large and smaller organizations (Adidam et al. 2012; Priporas et al. 2005) and has proven to be an important source of competitive advantage for them (Smith and Kossou 2008; Smith et al. 2010; Wright 2010).

The most common benefit of CI is the ability to build information profiles that help the organizations to identify the competitor's strengths, weaknesses, strategies, objectives, market positioning and counterintelligence pattern (Bose 2008). Furthermore, the value of the intelligence produced can be measured for accuracy, usability, relevance, readiness and timeliness (Bose 2008). A review of the literature also shows a positive relationship between CI and innovative performance and also indicates that CI leads to the creation of innovativeness in small businesses (Tanev and Bailetti 2008; Hussein et al. 2011). Hence, to compete effectively, SME must practice CI in their day-to-day business activities. However, far too little researches have centered on the entrepreneur's attitude on CI.

Given the fact that CI is important to the SMEs competitiveness and innovativeness, this concept paper argues that it is essential to understand the attitude of the entrepreneurs that practice CI which leads them to innovative behavior in their business practices. Therefore, the purpose of this paper is to review the literature and subsequently propose a linkage between entrepreneurial attitude on one hand and competitive intelligence and innovative performance on the other among the Malaysian SMEs.

2 Literature Review

2.1 *Entrepreneurial Attitude Orientation*

Attitude is an evaluation of an object of thought. Attitude objects can comprise anything a person may hold in mind, ranging from the mundane to the abstract,

including things, people, groups, and ideas (Bohner and Dickel 2011). Most researchers agree on these core definitions but there are more complex models on attitude and they vary considerably. Attitude exists at the general level and at a very specific level for many objects and because of this, attitude needs to be matched by measurement specificity (Ajzen 1988; Ajzen and Madden 1986). Robinson et al. (1991) summarize that attitude towards achievement in general (general object) is not the same as attitude towards achievement in an entrepreneurial setting (specific object). Thus, the Entrepreneurial Attitude Orientation (EAO) incorporated an attitude scale to predict entrepreneurial activity (Robinson et al. 1991). EAO is more domain-specific and increases the correlation with the actual behavior and reduces unexplained variability (Gibson et al. 2010). Furthermore, EAO has been tested for validity and the reliability in different social and cultural situations (Miao 2012).

The EAO model is based on four theories which are needs for achievement (McClelland 1961), innovation (Kirton 1984), personal control (Levenson 1973), and self esteem (Crandall 1973). In EAO, the interpretation of achievement, innovation, personal control and self esteem can be interpreted as the business accomplishment and undertakings, creativity in handling a business, self-influence over the business destiny and the self-confidence in running a business. In this study, attitude approach is applied because CI activities is iterative and cumulative and varies from one person to another. Fishbein and Ajzen (1977) suggests that the attitudinal factor signals a person's judgmental attitude towards a behavior and a normative belief signal a person's perceived social pressures to act or not to act on a specific behavior. Thus, EAO may envisage an entrepreneur behavior towards CI.

2.2 Innovative Performance

In today's innovation-led economy, all organizations in the world are forced to compete with one another for survival. Innovation is essential in achieving competitive edge in the business world since the 1930s. The dynamic technology development has become an enabling factor for many organizations and nations in improving their efficiency and productivity. Innovation assists in economic growth and the Malaysian Third Industrial Plan is committed to focus innovation among the SMEs either in manufacturing or services. The ability to innovate and continuously competent to upgrade the products and services are important in formatting the SMEs competitiveness (Varis and Littunen 2010).

Innovation is defined as the adoption of an idea or behavior that is new to an organization (Daft 1978; Damanpour and Evan 1984). The adoption of innovation is described as a process that includes generation, development and implementation of new ideas or behaviors. Innovation is not just an adoption but also an adaptation of new information and practices which lead to the ability to create new ideas and apply them to improvise new products, services, processes and procedures (Bates and Khasaweh 2005).

The definition of innovation has evolved into different categories which include products, production methods and technologies, markets, services and organizational structure and an assumption is made that the source of information varies between different types of innovation (Tödtling et al. 2009; Freel and de Jong 2009). Innovation can either be radical which is revolutionary and original (Green et al. 1995) or incremental which are small improvements on an established process, products or services. A thorough assessment on incremental innovations can be defined as expansions or improvements of the current products, services, processes, technical or administrative conditions. Incremental innovation will not cause any major revolutionization from the current circumstances but radical innovations in products, services, and processes will cause foremost transformation and alteration to the product, services or process extensively. Innovation adapted or adopted by organizations may differ in their life stages. An organization innovation may be at the initial stage or at the execution stage which are factors that influence an organization's innovation behavior. Nevertheless, innovation is practiced by all types of organizations regardless of size because it is proven that organizations that are innovative has higher profits and market share (Prajogo and Ahmed 2006).

For the purpose of this conceptual paper, innovative performance is defined as incremental product, service and process innovation because SME's innovation activities are more likely to be ad hoc or project driven (Hoffman et al. 1998). Furthermore, SMEs are likely to focus on incremental innovation as posit by Oke et al. (2007).

2.3 Competitive Intelligence

To understand what is CI, one needs to understand the definition of intelligence. According to Liebowitz (2006), *intelligence* refers to the collective value-added benefits obtained from the intangible assets such as knowledge from the employees, management, stakeholders, and customers. Knowledge and experience go hand in hand in developing intelligence. According to Kahaner (1996) and Drucker (1988), information is factual and intelligence is information that has been screened, distilled and analyzed.

Interestingly, CI is a product and also a process (Priporas et al. 2005). As a process, CI has several specific steps to be followed. CI process includes the constructs of planning, collection, analysis, communication, and organisational awareness for decision makers in deciding action (Strauss and du Toit 2010; Saayman et al. 2008; Bose 2008). CI is a product when the intelligence produced assists the decision makers in formulating a strategy and in making a choice (Adidam et al. 2012). In short, CI is both a process and a product when an organization gathers actionable information about the business environment and utilizes the intelligence in the decision making practice to improve the organization's performance. It is an ongoing process of analyzing data and information into

intelligence by applying psychological techniques and new technology to develop competitive edge (Fuld 2010).

Many literature argues that CI is only popular among the larger organizations but there are several empirical evidences that CI is applied by SMEs to improve the ability to assess the risk awareness and risk prevention (Zha and Chen 2009). Canadian and Iranian small businesses are also involved in CI to increase their innovative performance (Tanev and Bailetti 2008; Hussein et al. 2011; Tarraf and Molz 2006) and regards CI as crucial to their business success. SMEs in the European Union also have direct support from their governments to support the use of CI by raising awareness campaign and assisting in skill development (Larivet 2009; Smith et al. 2010).

For SMEs to be able to be competitive and innovative, Wright et al. (2012) advocate SMEs to invest and perform in CI. Based on the above literature review, theoretically an entrepreneur with high score of EAO is highly likely to be innovative as established by the EAO model constructs. Entrepreneur with high score of EAO may also engage in CI based on the high necessity to be creative in running and to accomplish business undertakings. In addition, competitive intelligence is also proven to increase innovative performance. Thus, EAO and CI is positively related to innovation.

3 Theoretical Framework

Based on the afore-mentioned literature review, the proposed framework is depicted in Fig. 1. Entrepreneurial Attitude Orientation constructs are represented by needs for achievement, innovation, personal control, and self esteem and viewed as possible predictors of competitive intelligence application and innovative performance. Competitive intelligence is also a predictor of innovative performance.

Based on the above literature review, the following propositions are anticipated.

Given the role played by attitudinal factor which can signal a person's judgmental attitude towards a behavior, it can be anticipated that there will be a positive relationship between an entrepreneur with high EAO score and CI.

CI is also empirically proven to increase innovative performance in SMEs. In view of the fact that EAO model is also based on innovation theory, it is anticipated that an entrepreneur with high EAO score will experience innovative performance.

Proposition 1: There will be a positive relationship between an entrepreneur with high EAO score and CI.
Proposition 2: There will be a positive relationship between CI and innovative performance.
Proposition 3: There will be a positive relationship between an entrepreneur with high EAO score and innovative performance.
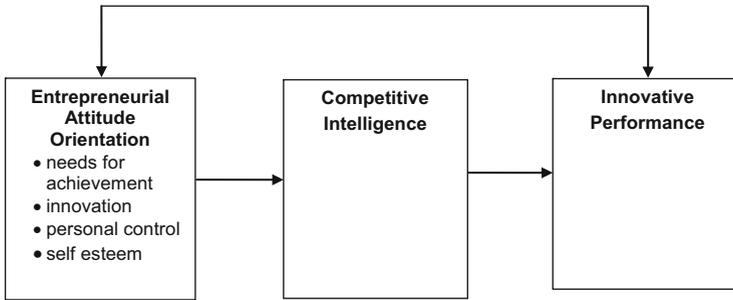
Fig. 1 Proposed conceptual framework

4 Conclusion

Entrepreneurship is indeed an important source for Malaysia economic success. The success of the Malaysian SMEs is very much affected by their attitude in engaging new behaviors to experience innovative performance. There is a consensus that the entrepreneur attitude is the decisive factor in engaging competitive intelligence. As Malaysia aspires to become a developed country, it is important that it increase its innovativeness to be at par with other countries. Nevertheless, a dedicated and a true entrepreneur will engaged in competitive intelligence to achieve innovative behavior. A review of prior literature indicates that competitive intelligence boosts innovative performance. Therefore, it is important for Malaysia to encourage its SME to be accustomed and involved in competitive intelligence. However, before any implementation is executed, it is wise to start with an awareness program. As a result, a conceptual model has been developed where EAO has been proposed as a significant predictor of competitive intelligence and innovative performance.

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Workplace Bullying in Malaysia: Incidence, Consequences and Role of Organisational Support

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Abstract Workplace bullying is an anti-social behaviour which is defined as continuous harassment or "mobbing" of individual employee experienced for a relatively longer period of time. This may take several forms such as constant abuse, offensive remarks or teasing, ridicule, social exclusion, harassment, physical violence etc. The situation may be damaging to the wellbeing and job performance of the employee. However, if the organisation provided necessary support to the employee the effect of bullying could be mitigated. The paper examines these issues in selected Malaysian organisations. A sample of 231 employees representing different industry, size, gender, age, experience and job position responded a self-rated questionnaire which measured the study variables, namely workplace bullying, psychological strain, self-rated job performance, and organisational support. Result indicated that nearly 14 % employees faced bullying incidents either weekly or daily. Such incidents resulted in higher psychological strain and lower job performance. Role of psychological support was positive in promoting performance and reducing strain.

1 Introduction

Workplace bullying is considered a severe form of anti-social behaviour. According to O'Driscoll et al. (2011), this behaviour is a major issue among employees and in organizations. Bullying can be identified by the occurrence of harmful physical or verbal behaviour that is repeated regularly. The individual or group being targeted is usually less powerful than the bully and lacks the ability to take a defensive position. Workplace bullying can occur in many forms, and can involve the use of insulting comments, yelling, screaming, and cursing. According to a survey one in

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six workers in the United States had been a victim of bullying in the previous year. Statistics also show that 81 % of bullies in the workplace are bosses and that the targets of bullying are usually women (Greenberg 2011).

According to Namie (2003), research about bullying was first initiated in the 1980s by a German psychiatrist, Heinz Leymann, who created an anti-bullying movement. Prior to the coining of the term "workplace bullying" in 1992 by British journalist Andrea Adams, workplace bullying was referred to as "mobbing". LaVan and Martin (2008) mentioned that workplace bullying had been studied under a variety of terms, including employee abuse, workplace aggression, victimization, interpersonal deviance, social undermining, and workplace incivility.

The phenomenon of workplace bullying is responsible for many negative consequences, ranging from mild to severe harm, to physical violence that can result in death. Einarsen et al. (2003) reported that workplace bullying is a more crippling and devastating problem for employees than all other kinds of work-related stress put together. O'Driscoll et al. (2011) conducted a survey of over 1,700 employees of 36 organisations in New Zealand and found a strong relationship between bullying and strain, reduced well-being, reduced organisational commitment, and lower self-rated performance.

Although the prevalence of workplace bullying in various countries has been explored in several studies, the majority of these studies have been conducted in Scandinavia and other European countries (O'Driscoll et al. 2011). There is little evidence from countries such as Malaysia. The present study, therefore, intends to explore this issue in the Malaysian workplace.

1.1   What Is Workplace Bullying?

Workplace bullying has been defined in several ways. Leymann (1996) defined it as psychological terror or mobbing in working life that involves hostile and unethical communication, which is directed in a systematic way by one or a few individuals mainly towards one individual who, due to mobbing, is pushed into a helpless and defenceless position, being held there by means of continuing mobbing activities. Leymann further maintains that such behaviour, over a long duration, causes psychological, psychosomatic, and social misery.

Einarsen et al. (2003) posited that bullying at work means harassing, offending, or socially excluding someone, or negatively affecting someone's work tasks. In order for the bullying (or mobbing) label to be applied to a particular activity, interaction or process, the action has to occur repeatedly and regularly (e.g., weekly) and over a period of time (e.g., 6 months). Bullying is an escalating process during the course of which the person confronted ends up in an inferior position and becomes the target of systematic negative social acts. A conflict cannot be called bullying, however, if the incident is an isolated event, or if two parties of approximately equal "strength" are in conflict.

According to Namie (2003) regardless of how bullying is manifested, through either verbal assaults or strategic moves to render the target unproductive and unsuccessful, it is the aggressor's desire to control the target that motivates the action. Usually the person that the victim reports to (the boss) is the bully. Some common features of bullying in organizations include multiple negative acts and repeated forms of abuse, persisted abuse (over a period of 6 months or more), and involves power distance or disparity between the bully and the victim (Mikkelsen and Einarsen 2001; Salin 2001; Hoel et al. 2001; Zapf et al. 1996).

Research shows that bullying does not necessarily involve people from different genders or races. In fact, most reported bullying incidents involve people of the same sex and gender as the victim. Only 25 % bullying cases involve perpetrators of a different gender (Namie 2003). Namie observed that the characteristic common to all bullies is that they are controlling competitors who exploit their cooperative targets. Most bullies would stop if the rules changed and bullying was punished.

Few studies have addressed the issue of this anti-social behaviour in Malaysia. Patah et al. (2010) conducted a study on workplace bullying experiences, emotional dissonance and subsequent intentions to pursue a career in the hospitality industry. The study involved Malaysian diploma holders training at different hotels in Malaysia. Findings showed the significant impact of workplace bullying on the trainees' subsequent career intentions and the emotional dissonance of their experiences. Another study by Yahaya et al. (2012) investigated the impact of workplace bullying on work performance in a manufacturing company. They reported significant relationship. Writing an essay on this subject in a Malaysian newspaper, Yeen (2012) posited that victims of workplace bullying in Malaysia may not have physical injuries, but they are suffering from pain that runs inside them. The situation at the workplace, the author mentions, is very similar to the typical schoolyard where little kids are bullied. Yeen opined that Malaysians in the workplace can become targets for bullies if they have at least one vulnerability that can be exploited, are different from others, are conscientious, quiet achievers, good at their job, are agreeable and well-liked, show independence of thought or deed, get more attention from others than the bully does, have inappropriate social skills and have annoyed the bully, are unassertive and prefer to avoid conflict, have a dispute with the bully, and are just in the wrong place at the wrong time.

1.2 Workplace Bullying and Psychological Strain

Previous researchers have agreed that workplace bullying is a major stress factor and it can have negative consequences on employees' health (Bjorkqvist et al. 1994; Einarsen and Raknes 1997; Einarsen et al. 1996; Niedl 1996; O'Moore et al. 1998; Vartia 2001; Zapf et al. 1996). Agervold and Mikkelsen (2004) reported that employees may experience symptoms of anxiety, irritability and depression as health effects. In worst cases employees may develop symptoms similar to Post-traumatic Stress Disorder (PTSD) (Leymann 1996). Namie (2003) also reported

that the WBTI 2003 survey, aimed at measuring the psychological status of bullied employees, showed shocking results as effects of bullying range from severe anxiety (76 % prevalence), disrupted sleep (71 %), loss of concentration (71 %), PTSD (post-traumatic stress disorder, 47 %), clinical depression (39 %), and panic attacks (32 %). All studies seem to suggest that experiences of bullying at work may negatively affect employee mental health and well-being. As such we hypothesised that:

H/1 Workplace bullying positively affects employees' psychological strain.

1.3   Workplace Bullying and Job Performance

Workplace bullying has damaging effect on employees' job performance as well. The more severe bullying is, the more psychological strain it causes, the worse job performance is. Studies suggest that the decreased job performance has an impact on job satisfaction and productivity. Fisher-Blando (2008) explained that bullying has a negative effect on how employees perform their jobs, which also has a negative impact on the employees' morale and the financial performance of the organization. Namie (2003) also added that workplace bullying is very costly for the organization as bullied employees, who happen to be talented, develop job dissatisfaction and eventually leave the organization, so the rates of turnover will increase. Another study by Lutgen-Sandvik et al. (2007) found out that the degree of workplace bullying is negatively correlated with job satisfaction and overall job performance rating. Therefore the following hypothesis was developed.

H/2 Workplace bullying negatively contributes to employees' job performance.

1.4   Workplace Bullying and Role of Organizational Support

The construct of perceived organizational support includes employees' belief that the organization values their contributions, efforts, and well-being (Chen et al. 2009). The organization is perceived to fulfil the socio-emotional needs of its employees. There are evidences from work stress literature that social support at the workplace as well as organisational support contribute to increased job satisfaction, more positive mood, reduced stress, increased affective organizational commitment, increased performance, reduced turnover (O'Driscoll et al. 2011; House et al. 1988; Nahum-Shani and Bamberger 2011). Therefore, we hypothesised that:

H/3 Bullying at the workplace is negatively related to perceived support from the organization.

Furthermore, it was expected that effect of bullying on employees' psychological strain as well as performance will be reduced if the organisation provides adequate support to the employees in terms of valuing their contribution and well-being. It was, therefore, hypothesised that:

H/4 Organisational support is positively associated with employees' performance and negatively with psychological strain.

2 Method

2.1 Instruments

Following instruments were used to measure the study variables.

(a) Workplace bullying was measured using the 22 revised version of Negative Acts Questionnaire (NAQ-R) by Einarsen (Hauge et al. 2007). The 22 items describe negative behaviours employees may encounter at the workplace. For instance, "*Being ignored or facing a hostile reaction when you approach*". The responses vary from 1 (never) to 5 (daily). The instrument has been widely used and has been recognized as a reliable and valid measure of bullying construct (See Carroll and Lauzier 2014).

(b) Psychological strain was measured using the 12 items of the General Health Questionnaire (GHQ-12) developed by Goldberg (1972). The respondents had to select how often they experienced the 12 items of psychological symptoms such as "*Feeling unhappy and depressed*". Higher score on the instrument indicated greater strain. The scale is regularly used in occupational strain studies (O'Driscoll et al. 2011)

(c) Organisational Support was measured by eight items adopted from scale developed by Eisenberger et al. (1986). Example of the measurement items in the scale: "*The organization cares about my general satisfaction at work*". The test has four positively worded and four negatively worded items. The negative items were reverse-scored so that higher score indicated greater perceived support from the organization.

(d) Self-rated job performance was measured by a single item scale developed by Kessler et al. (2003). Respondents are asked to rate themselves on a scale of 1–10 to indicate how well have they performed their job over the last 4 weeks?

The questionnaires were conveniently distributed to the employees working in different organisations through personal contacts as well as using online survey. A total of 231 usable ones were returned. Respondents were ensured about the confidentiality as well as anonymity to ensure their frank response on the questionnaire. Some demographic details were also collected.

2.2 Respondents' Profile

Good number of respondents worked in customer service (18.2 %); the smallest group belonged to health institutions and personal care (3.5 %). Gender wise distribution showed a higher percentage of females (56.3 %) compared to males (43.7 %). Age-wise the largest number (42.9 %) fell into the age group of 21–30 years and only 5.6 % were above 51 years. In terms of Job levels 27.3 % were executives, 26.4 % were managers and 1.7 % were consultants. Majority of them (43.3 %) had the work experience between 6 and 10 years. Only 4.8 % had a work experience of 21 years and above.

3 Results

3.1 Frequency of Negative Acts

The frequency analysis revealed various forms of negative acts faced by employees in different frequencies. Most employees never got any negative behaviour at their workplace. However, there were number of instances where the encounters were either now and then, monthly, weekly and in some cases daily. Table 1 displays the frequencies.

Most employees never got any negative behaviour at their workplace. However, there were good number of instances where they reported facing various forms of negative acts now and then, such as, someone withholding information which affected performance, spreading gossips, being shouted at or becoming target of anger, opinion being ignored, and getting tasks with unreasonable deadlines. Some admitted that they have received threats of violence or physical or actual abuse at work. In terms of the incidents occurring monthly 25 % reported that they were being ordered to do work below their level of competence, 29 % said that gossip was being spread about them, 25.5 % were being reminded of their errors and mistakes, and 28.1 % were being pressured to not claim something to which by right they were entitled to.

Some common negative behaviour faced on weekly basis was: someone withholding information which affects performance (16.9 %), being ordered to do work below the employee level of competence (18.6 %). Another 19.5 % respondents said that they have been insulted and offended with remarks regarding their person, attitude, or private life.

Being bullied on daily basis is the most severe kind and it could leave serious damages. Although the low percentages indicated that only a handful of employees were getting bullied daily, it does not mean they should be ignored. This is a serious problem, and whoever is responsible should be stopped and punished. 5.6 % of the respondents said that key areas of responsibility have been removed or replaced with more trivial or unpleasant tasks, and gossip was being spread about them. 5.2 % of them reported receiving insulting behaviours daily.

Table 1 Percentage of negative behaviours by frequencies of occurrence

Negative behaviours	Never	Now and then	Monthly	Weekly	Daily	Total of weekly and daily
Someone withholding information which affects your performance	**18.6**	39.0	23.8	16.9	1.7	**18.6**
Being humiliated or ridiculed in connection with your work	**41.1**	26.8	19.5	12.6	0	**12.6**
Being ordered to do work below your level of competence	**27.3**	27.7	25.1	18.6	1.3	**21.2**
Having key areas of responsibility removed or replaced with more trivial or unpleasant tasks	**39.4**	17.7	22.1	15.2	5.6	**20.8**
Spreading gossip about you	**17.7**	34.6	29.0	13.0	5.6	**18.6**
Being ignored or excluded	**43.3**	22.5	16.0	13.9	4.3	**18.2**
Having insulting or offensive remarks made about your person, attitudes, or private life	**47.2**	13.0	20.3	19.5	0	**19.5**
Being shouted at or being target of spontaneous anger	**30.7**	32.0	23.8	10.0	3.5	**13.5**
Insulting behaviour	**45.5**	26.0	17.7	5.6	5.2	**10.8**
Hints or signals from others that you should quit your job	**53.2**	18.2	21.6	5.2	1.7	**6.9**
Repeated reminders of your errors or mistakes	**29.9**	32.0	25.5	10.4	2.2	**12.6**
Being ignored or facing a hostile reaction when you approach	**26.4**	36.4	24.7	10.8	1.7	**12.5**
Repeated criticism with respect to your work and effort	**32.9**	37.7	7.8	17.7	3.9	**21.6**
Having your opinions ignored	**20.3**	52.4	13.4	12.1	1.7	**13.8**
Practical jokes carried out by people you do not get along with	**36.4**	34.2	19.0	10.4	0	**10.4**
Being given tasks with unreasonable deadlines	**17.7**	53.2	12.6	12.6	3.9	**16.5**
Having allegations made against you	**45.9**	32.0	11.3	9.1	1.7	**10.8**
Excessive monitoring of your work	**32.9**	36.4	17.7	8.7	4.3	**13.0**
Pressure to not claim something to which by right you are entitled to	**37.2**	28.6	28.1	3.9	2.2	**6.1**
Being the subject of excessive teasing and sarcasm	**45.9**	24.2	15.2	12.6	2.2	**14.8**
Being exposed to unmanageable workload	**29.0**	37.2	20.3	9.5	3.9	**13.4**
Threats of violence or physical or actual abuse	**75.8**	18.2	2.6	3.5	0	**3.5**
Average						**14.07 %**

3.2   Descriptive Statistics and Correlations

Table 2 reports the descriptive statistics and coefficient of correlations. Results indicated good reliability of instruments used in the study. Correlations suggested that workplace bullying was positively associated with psychological strain ($r = 0.42$) and negatively with perceived organizational support ($r = -0.68$). Also, bullying was negatively associated with self-rated job performance ($r = -0.52$). Organizational support, on the other hand, was negatively related to psychological strain ($r = -0.35$) and positively correlated with self-rated job performance ($r = 0.35$). The correlations were in the hypothesized direction.

O'Driscoll et al. (2011) argued that the frequency of bullying encounters may not necessarily indicate the severity of a negative act. Even a less frequent bullying action may have a strong impact on the employees. Therefore, to measure the relative contributions of each negative act to employees' performance and strain, multiple regressions were performed. Multicoliniarity diagnostics were performed and no issue was found as VIF indices were within acceptable range. A Variance Inflation Factor (VIF) of less than ten is considered acceptable value to rule out multicoliniarity of the independent variables in equation (Pallant 2010). Results are entered in Table 3.

Regression analysis yielded three items of NAQ contributing negatively to employees' performance and eight items contributing positively to psychological strain. Negative acts that resulted into lower self rating of performance included someone withholding information, opinion being ignored, and unreasonable deadlines. Similarly, acts that resulted in higher strain included being humiliated or ridiculed, insulting, offensive remarks, being shouted at or being target of spontaneous anger, repeated reminders of mistakes, repeated criticisms, practical jokes, and excessive teasing and sarcasm. Overall negative acts explained 34 % of the variance in performance and 30 % in psychological strain and supported hypotheses 1 and 2 of the study.

3.3   Bullying and Organisational Support

The NAQ items were also regressed on perceived organisational support to test hypothesis 3 which expected negative relationship between the two. Table 4 displays the result.

Table 2 Descriptive statistics and inter-correlations

		Mean	SD	Alpha	1	2	3	4
1	Bullying	2.13	0.82	0.87	–			
2	Strain	2.50	0.26	0.90	0.42***	–		
3	Org support	3.99	1.39	0.84	−0.68***	−0.35**	–	
4	Performance	6.92	1.84	–	−0.52***	−0.23*	0.35**	–

Notes: ***P < 0.001; **P < 0.01, *P < 0.05

Table 3 Bullying as predictor of self rated job performance and psychological strain

	Performance			Psychological strain		
Predictor	β	t	VIF	β	t	VIF
Someone withholding information which affects your performance	−0.48	−7.47***	1.61			
Having your opinion ignored	−0.16	−2.59**	1.89			
Being given task with unreasonable deadlines	0.33	−4.55***	1.63	0.42	5.13***	3.82
Being humiliated or ridiculed in connection with your work				0.58	5.30***	4.37
Having insulting or offensive remarks made about your person, attitudes, or private life				0.51	4.40***	2.72
Being shouted at or being target of spontaneous anger				0.60	6.61***	3.07
Repeated reminders of your errors or mistakes				0.31	3.27**	3.38
Repeated criticism with respect to your work and effort				0.42	4.21***	2.57
Practical jokes carried out by people you do not get along with				0.22	2.58***	3.07
Being the subject of excessive teasing and sarcasm				0.59	6.11***	2.22
	Adj. $R^2 = 0.34$; (F = 31.15; P < 0.000)			Adj. $R^2 = 0.30$; (F = 12.17, P < 0.000)		

Notes: ***P < 0.001; **P < 0.01

The findings supported hypothesis 3. Out of 22 items of NAQ, 12 were found to be negatively associated with organisational support. Together such experiences explained 58 % of the variance. To test hypothesis 4 a simple regression analysis was performed to predict the two dependent variables, i.e., performance and strain from organisational support. Analysis showed positive contribution (β = 0.35, P < 0.000) to self-rated job performance and negative contribution (β = −0.16, P < 0.01) to psychological strain.

4   Discussions and Conclusion

The study proposed to examine the situation on workplace bullying and how frequently various negative acts occur in workplaces in Malaysia. The study objectives also included examining the effects of bullying on psychological strain, perception of organisational support, and self rating of performance. It was expected that bullying will positively affect psychological strain and negatively affect performance as well as perceived organisational support. Also, it was

Table 4 Bullying as predictor of organisational support

	β	t	VIF
Someone withholding information which affects your performance	−0.14	−1.9*	2.62
Being humiliated or ridiculed in connection with your work	−0.22	−2.09*	4.47
Being ordered to do work below your level of competence	−0.26	−3.65***	2.06
Spreading gossip about you	−0.29	−2.78**	3.67
Being ignored or facing a hostile reaction when you approach	−0.22	−2.47**	6.67
Having insulting or offensive remarks made about your person, attitudes, or private life	−0.33	−2.24*	2.93
Being shouted at or being target of spontaneous anger	−0.16	−2.01*	2.20
Having your opinions ignored	−0.39	−5.76***	2.01
Being given tasks with unreasonable deadlines	−0.22	−2.48**	2.83
Having allegations made against you	−0.23	−1.92*	5.66
Pressure to not claim something to which by right you are entitled to	−0.33	−3.32**	3.94
Being the subject of excessive teasing and sarcasm	−0.22	−2.24*	2.67
	Adj. $R^2 = 0.58$; F = 15.63, P < 0.000		

Notes: ***P < 0.001; **P < 0.01, *P < 0.05

expected that organisational support will mitigate psychological strain and facilitate performance.

The combined frequency of negative acts experienced on a weekly or daily basis (to qualify as being bullied) suggested a score of 14.07 %. This is the figure that has been reported in other studies as well. For example Nielsen et al. (2010) reported an overall 14.6 % of employees being bullied after conducting a meta-analysis of 86 studies across several countries. Some common negative behaviour faced on weekly and daily basis were: withholding information which affected performance (18.6 %), being ordered to do work below the level of competence (21.2 %), having key areas of responsibility removed or replaced with more trivial or unpleasant tasks (20.8 %), spreading gossip about you (18.6 %), being ignored or excluded (18.2 %), repeatedly criticized (21.6 %) and being insulted and offended with remarks regarding their person, attitude, or private life (19.5 %).

It was also suggested that (e.g., O'Driscoll et al. 2011) even a less frequent negative encounter may have profound psychological impact on employees that may reduce their motivation to work and cause distress. We, therefore, performed multiple regression analysis to examine the contribution of each of the 22 negative acts (included in the NAQ measure) on two the outcome variables, namely, self-rated job performance and psychological strain. The findings showed that more negative acts contributed to strain than to performance. Several negative encounters caused significant psychological distress; however, three acts of others significantly reduced their performance. As reported earlier these acts included: withholding of information that affected employees' performance, their opinion being ignored, and

unreasonable deadlines. Among the acts that caused strain included task given with unreasonable deadlines, being humiliated or ridiculed in connection with work, getting personal insulting or offensive remarks, being shouted at or being target of anger, repeated reminders of errors and mistakes, repeated criticism of work effort, practical jokes carried out by unfriendly colleagues, and being subject of excessive teasing or sarcasm.

The result examining the effect of bullying on self rated job performance and psychological strain supported our hypothesis. The analysis also suggested a significant negative contribution of bullying experiences on perceived organisational support. On the other hand organisational support was negatively associated with strain and positively with performance. As posited by Chen et al. (2009), perceived organizational support indicates employees believe that the organization values their contributions, efforts, and well-being. In return employees enjoy their work, show work commitment and better performance.

Overall the findings were in line with previous studies conducted in other places which suggested the negative effects of workplace bullying on employees' performance, job satisfaction, morale, and intention to stay with the organisation (Fisher-Blando 2008; Namie 2003; Lutgen-Sandvik et al. 2007).

4.1 Limitations and Suggestions for Future Studies

The study has few limitations. Firstly, the sample size was small thus limiting the possibility of any adequate generalisation of results. Furthermore, data need to be collected from a well-designed sampling framework that adequately represents employees from different sectors and industry as well as better representations of employees at different levels within the organisation. Also the cross sectional design of the study puts limitation on causal explanation. Moreover, objective of the study should have included coping strategies that employees develop in situations where they are frequently subjected to negative acts, as well as organisational initiatives to mitigate the effects of such acts. Future studies are recommended to examine these issues.

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Team Context and Team Performance: An Integrated Review

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Abstract High-quality teamwork has been recognized as central for organizational success. As such, researchers and practitioners have attempted to uncover how best to ensure high team performance. A review of the literature on teams suggested that team performance is a function of a variety of factors. While research shows that team context is important, investigations on this subject are still inadequate particularly for manufacturing teams within the context of a developing country like Malaysia. Therefore, the purpose of this paper is to review the extant literature on team performance and subsequently propose a model linking team context (team leaders' transformational leadership style and perceived team support) with team performance in the Malaysian manufacturing industry with a focus on the electrical and electronic sector. In addition, trust is explored as a mediator in the above-mentioned relationship.

Keywords Team performance • Team context • Transformational leadership • Perceived team support • Malaysia

1 Introduction

The Malaysian manufacturing sector has progressed tremendously with a record of RM52.1 billion (24.1 %) worth of investment by December 2013 (Malaysian Investment Development Authority [MIDA] 2014). In particular, its foreign investment projects amounted to RM30.5 billion and accounted for 58.5 % of the total investments approved for year 2013. On a similar note, its domestic investments recorded a sum of RM21.6 billion or 41.5 % of total investments (MIDA 2014). In January 2014, the sales value of local manufacturing sector increased by 12.3 % from RM50 billion in January 2013 amounted to a total of RM56.1 billion. It is recently reported that the manufacturing sector in Malaysia offered employment

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opportunities to 1.03 million employees by January 2014 (Department of Statistics 2013). Malaysian manufacturing sector comprises several industries such as electrical and electronics, textiles, food processing, petrochemical and polymer, pharmaceuticals and rubber products (MIDA 2014). Of these, the electrical and electronics industry (thereafter labelled as E and E) has been designated as a leading sector with a contribution of 26.94 % to the country's manufacturing output, 48.7 % to exports, and 32.5 % to employment (MIDA 2014). The E and E industry has evolved and expanded since the 1970s and it has more than 1,695 companies with a workforce of more than 600,000 people (Brandt and Wei 2012).

Orchestrating such a large number of employees can be challenging. Thus companies must be able to smartly integrate employees' skills and knowledge so as to cater customers' demands and beat rising competitions. In order for manufacturing firms to stay ahead of their competitors, researchers have suggested the utilization of teams (Natale et al. 1998; Doolen et al. 2006; Salas et al. 2008a). Neway (2013) professed that manufacturing firms can achieve better process understanding through the establishment of quality teams. As teams can predict trends and provide proactive solutions, companies must be able to gather the right people with the right capabilities to be in teams so that performance can be sustained and renewed accordingly (Neway 2013). Karim and Arif-Uz-Zaman (2013) asserted that the competitive global markets faced by manufacturing firms are a challenge to their capability. Manufacturing teams, consisting of technical experts and management personnel must be able to organize and collaborate to maximize the usage of resources while reducing costs and risks. This collaboration will have to be done in a positive context which includes good leadership style and positive team members' support.

Thus, based on the aforementioned discussion, the purpose of this paper is to review the extant literature and subsequently propose a linkage between team context (transformational leadership and perceived team support) and team performance among E and E teams in the Malaysian manufacturing sector. In addition, given the fact that teams with higher level of trust perform better as opposed to teams with lower trust (Gill et al. 2005; Mayer et al. 1995), team trust has been identified as a potential moderator in the proposed relationship.

2 Literature Review

2.1 Team Performance

Team performance is referred to as an "emergent phenomenon" that developed from shared goals (Salas et al. 2008b). It is a collective work product that reflects real contribution of team members (Katzenbach and Smith 1993). A high performing team will exhibit positive engagement in taskwork and teamwork behaviors, involving shared integration, synthesis and sharing of information

(Salas et al. 2008a). In the context of manufacturing teams, Deshpande (2013) stated that technical teams (such as E and E teams) work together to save costs, exceed customers' expectations, and enhance product quality which will result in greater performance not only to the team but also to the organization. High performing teams also regularly comes out with innovative ideas for product with reduced product life cycle (Deshpande 2013).

2.2 Predictors of Team Performance

As depicted in Fig. 1, a review of the extant literature (Ganesh and Gupta 2010; Garg and Rastogi 2006; Katz-Navon and Erez 2005; Senior and Swailes 2004; Tannenbaum et al. 2012; Hu and Liden 2013; Schippers et al. 2010; Tuuli and Rowlinson 2010) reveals that the predictors of team performance can generally be categorized into: (1) team task (task identity, task interdependence, and task significance), team composition (team knowledge, team skills, and team diversity), and team context (leadership behaviors and team support). Among these three categories of predictors, team context has been found to be the most critical in shaping positive team surroundings that can maximize performance (Hu and Liden 2013; Giammanco et al. 2010). In team context, the two most prevailing constructs that are important to team performance are leadership behaviors and team support (Tuuli and Rowlinson 2010). As such, this paper will focus on the role of team context (i.e. team leaders' transformational leadership style and perceived team support) on team performance.

2.3 Team Context

Team context is the internal aspects of a team's environment, often containing members' supportive behaviours and members' exposure to leaders' behaviors (Hu and Liden 2013). Tuuli and Rowlinson (2010) asserted that the two most important characteristics contained in team context are span of control (i.e. team
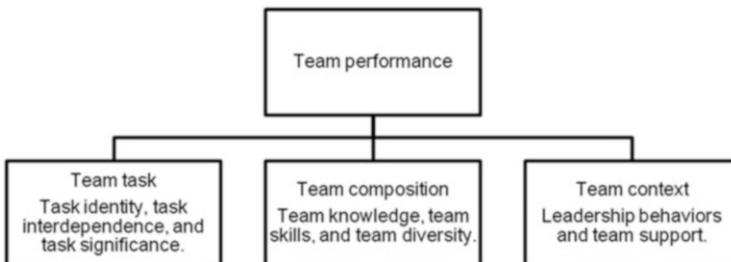

Fig. 1 Predictors of team performance

leaders' leadership style) and team members' interdependence (i.e. the support given by team members). This idea is further supported by Tuuli et al. (2012) who stated that team context reflects key features of a team and it consists of leaders' span of control, team goals, and task interdependence of members. One outstanding leadership style that has been shown to impact team performance is transformational leadership style (Dionne et al. 2004; Mannheim and Halamish 2008; Braun et al. 2013). Transformational leadership promotes leaders' positive values, ethics and long-term goals of a team (Dionne et al. 2004). In addition, team performance is also influenced by the way team members gage the support they receive from other members. Perceived team support will elevate team performance as members who feel supported will often reciprocate with the team (Paillé 2009). Therefore, we suggest that team context will have a positive influence on team performance. The following section of this paper will focus on the impact of team context on team performance within the Malaysian E and E manufacturing sector.

2.3.1 Transformational Leadership

Transformational leadership raises both leaders' and subordinates' level of motivation and morale and it has been advocated as crucial to overall team performance (Dionne et al. 2004; Mannheim and Halamish 2008; Braun et al. 2013). There are six key behaviors of transformational leaders that were elaborated by previous scholars (Podsakoff et al. 1990; Dionne et al. 2004; Kozlowski and Ilgen 2006). The key behaviors are: (1) Identifying and articulating a vision which concerns a leaders' ability to identify new opportunities while developing, articulating and inspiring others with his/her vision of the future, (2) providing appropriate model that relates to a leaders' behavior that could be set as an example for the employees to follow, (3) fostering the acceptance of group goals which focus on the way leaders promote cooperation among employees that get them to work and achieve common goals, (4) high performance expectations which depict the leaders' expectations for excellence quality and high performance from his follower, (5) providing individualized support is the behavior that suggests the way leaders respect followers' personal feelings and needs, and (6) intellectual stimulation is how the leaders challenge followers' ways of thinking and their assumptions about work (Podsakoff et al. 1990). These key behaviors suggest that transformational leaders possess admirable qualities, have appealing visions, and are sensitive to team members' needs (Kozlowski and Ilgen 2006). For work teams in the E and E manufacturing sector, transformational leadership can be an important human factor especially in ensuring teamwork and effective communication (Fraser et al. 2013). Thus, based on previous evidence that transformational leadership positively affect members' attitudes and behaviors (Podsakoff et al. 1990; Dionne et al. 2004; Kozlowski and Ilgen 2006; Mannheim and Halamish 2008; Braun et al. 2013), it is predicted that team members' perception towards their leaders' transformational leadership will be positively related to the team's performance. Therefore, it is proposed that:

Proposition 1: Team members' perception of their leaders' transformational leadership will be positively related to team performance.

2.3.2   Perceived Team Support

Perceived team support is the extent to which team members feel that their contribution is appreciated and that their well-being are being cared for, and this will stimulate members to exert greater effort in implementing team tasks (Bishop et al. 2000; Paillé 2009). The perceived team support construct was originally derived from perceived organizational support (Eisenberger et al. 1986) and was made popular by researchers investigating team performance (Bishop et al. 2000; Howes et al. 2000; Paillé 2009). Drach-Zahavy (2004) asserted that perceived team support includes emotional support, informational support, instrumental support and appraisal support. These supportive elements will strengthen members' willingness to assist other members, depending on the amount of support they receive (Drach-Zahavy and Somech 2002; Drach-Zahavy 2004). For work teams in the E and E manufacturing sector, perceived team support is crucial as support can help alleviate work stress which ultimately reduce occupational hazards (Tai 2012). As a result, team performance is likely to be improved. Although perceived team support is essential to team performance, empirical studies on this subject are still scarce (Howes et al. 2000; Paillé 2009). Thus, based on the aforesaid discussion, we posit the following:

Proposition 2: Perceived team support will be positively related to team performance.

2.4   The Role of Team Trust as a Moderator in the Team Context-Team Performance Relationships

Team trust is the expectation that others will behave as expected (Jarvenpaa et al. 1998). It is made up of three important elements: ability (set of skills that signify competence), benevolence (feeling of interpersonal care and concern), and integrity (adherence to set, rules or principal) (Jarvenpaa et al. 1998). Teams whose members possess higher sense of trust will usually exhibit better performance compared to teams whose members have lower sense of trust (Sheng et al. 2010). Studies have documented that a higher level of trust will lead team to better team performance and vice versa (Costa 2003; Erdem 2003). More recently, Zhu et al. (2013) found that team trust improves leader-follower relationships and is essential for performance. Therefore, based on the preceding discussion that teams with higher level of trust performs better (Costa 2003; Erdem 2003; Sheng et al. 2010; Zhu et al. 2013), team trust may serve as a plausible moderator in the

relationship between team context and team performance. Therefore, it is postulated that:

Proposition 3: The relationship between team context (team members' perceptions of their leaders' transformational leadership and perceived team support) and team performance would be stronger for teams with higher level of trust than for teams with lower level of trust.

2.5   Conceptual Framework

Based on a review of the literature and consistent with the significant role of team context on team performance (Tuuli and Rowlinson 2010; Tuuli et al. 2012; Hu and Liden 2013), our proposed framework is illustrated in Fig. 2. Team context variables consist of transformational leadership style and perceived team support. Along with that, team trust is viewed as a possible moderator in the team context—team performance relationship.

3   Conclusion

Achieving high performance is an aspiration to all teams including manufacturing teams in the Malaysian E and E sector. The ability of teams to unify and cooperate especially in situations of high uncertainties is a determining factor for superior performance. Thus, smart management of teams in handling work activities is important. In managing teams, leaders and members need to be sensitive to the surrounding context in which they work. These contextual variables include team leaders' leadership style and team members' support. One particular leadership style that has received much attention in the literature is transformational leadership style. Previous studies have suggested that transformational leadership behaviors tend to motivate and encourage team members towards achieving better performance. Prior literature has also recognized perceived team support as an important element that promotes team performance. Team members will exhibit higher drive
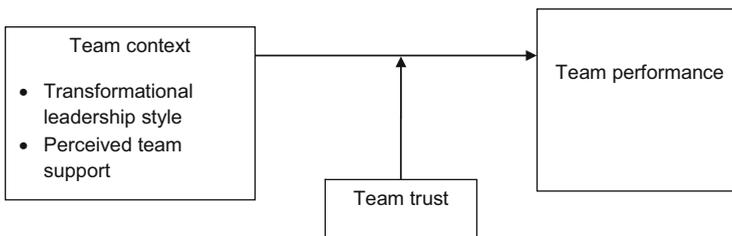

Fig. 2 Proposed conceptual framework

for performance when they believe that they are supported and appreciated by other members. Based on the aforementioned discussion, a conceptual model has been developed where team context (team leaders' transformational leadership style and perceived team support) is proposed as a significant predictor of team performance. Furthermore, since trust in teams play a role in ensuring team success, this variable is expected to have moderating effect on the relationship between team context and team performance.

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Discussion Frames in Motherhood Blogs: A Case Study on Suburban Mom

Riikka Makinen and Pekka Tuominen

Abstract The purpose of this study is to describe and analyse the emerging discussion frames in motherhood blogs. The main focus is on interaction and interactivity in motherhood blogs because they are very communal in nature. Blogs are one form of a larger phenomenon of user-generated content that has changed the way consumers communicate with each other. The conceptual framework is constructed from theoretical discussion frames identified in earlier literature. Netnography was chosen as the research method because it is designed for exploring the various communities that emerge through computer-mediated communications. The Finnish blog Suburban Mom was selected for deeper analysis, and the empirical data are based on 54 blog entries and 1,377 comments. This rich qualitative material was analysed using categorization. Eight empirical discussion frames emerged from the data, namely introducing and welcoming, exchanging courtesies, drawing inspiration, searching for information, sharing knowledge, providing peer support, expressing opinions, and opposing values.

Keywords Blogs • User-generated content • Discussion frames • Netnography

1 Introduction

1.1 The Concept of User-Generated Content

In broad terms, user-generated content is an umbrella concept used to describe all the different forms of media content created by end-users that are publicly available on the Internet (Kaplan and Haenlein 2010). User-created content (see e.g., Wunsch-Vincent and Vickery 2006) is used as a synonym for user-generated content but the latter concept is more commonly used. Replacing the neutral concept of user, Muñiz and Schau (2007) used the concept consumer-generated content in the context of vigilante marketing, emphasizing the consumer-brand relationship. Due to its dominance in academic literature, however, the concept

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user-generated content (UGC) was chosen to be used in this study. Here, user-generated content refers to creating and generating content either from scratch or by combining elements that already exist on the Internet.

Wunsch-Vincent and Vickery (2006) have proposed three essential characteristics for user-generated content. Firstly, in order for a work to be considered user-generated content, it must be published on the Internet either for all Internet users or for a select group of people. Secondly, a work must contain a certain amount of creative effort, meaning that users' own input in to the work must be evident. Thirdly, a work must be created outside of professional routines and practices.

Stoeckl et al. (2007) have listed three characteristics to define user-generated content. According to them, the most striking characteristic of user-generated content is the fact that consumers have now become the producers. In addition, production of user-generated content occurs without a direct profit motivation. Finally, user-generated content is mass media-orientated, as it is produced for an uncertain number of recipients. Hence, both definitions underline amateur consumers as the new producers of content as well as user-generated content's mass media-orientation, but the former definition places more emphasis on creative aspects while the latter stresses the absence of direct economic incentives.

User-generated content builds on the technical and ideological foundations of Web 2.0, a concept used since 2004 to describe the new way of using the Internet, that is, the transition away from a unidirectional information flow to an interactive web. User-generated content has been available since the early 1980s but the advent of Web 2.0 made a fundamental difference, since it allows Internet content to be created and continuously modified by all users in a participatory and collaborative way. Another concept that is closely related to user-generated content is social media, which can be defined as a group of applications that allows the creation of user-generated content (Kaplan and Haenlein 2010). Recognizing that their classification is not definite—since social media evolves constantly and new applications are sure to emerge in the future—Kaplan and Haenlein (2010) have divided social media applications into six categories: blogs, collaborative projects (e.g., Wikipedia), social networking sites (e.g., Facebook), content communities (e.g., YouTube), virtual social worlds (e.g., Second Life), and virtual game worlds (e.g., World of Warcraft).

Although the influence of user-generated content on the world at large is still somewhat unclear, it is safe to say that it is fundamentally changing the world of entertainment, communication, and information (Shao 2009). Social media applications continue to proliferate both in terms of sheer volume and in breadth as new types of applications continue to emerge (Hoffman and Novak 2012). The existence of different consumer communities online implies that power is shifting away from marketers and flowing to consumers (Kozinets 1999). Consumers nowadays contribute to all parts of the value chain, from articulation of reviews and opinions to the extensive co-creation of products and software (Hennig-Thurau et al. 2010).

1.2 Problem Setting and Previous Research

The purpose of this study is to describe and analyse the emerging discussion frames in motherhood blogs. More precisely, this study focuses on exploring social interaction between the blogger and blog readers in the blog's comment section.

To date, research has mainly focused on studying why people engage in virtual communities and the consequences of doing so. However, the way community members interact with each other remains largely unknown. de Valck et al. (2009) studied how virtual communities function and, more precisely, highlighted what is actually being shared in them. The researchers concluded that since they focused on studying traditional virtual communities, research on more recently developed forms of communities, such as blogs, was needed. As Kozinets (2006b, p. 131) suggests: "blogs, or web logs, in particular are ascendant right now as a forum for individual information that becomes a focus of communal response".

Blogs are not a solo activity but a medium for multi-directional communication between bloggers and readers (Baumer et al. 2008). Therefore it is surprising that most research on blogs has focused on blog writing and the blogger, rather than on the role of the reader in the blogging process (Baumer et al. 2008; Huang et al. 2008; Morrison 2011). In order to fully understand the activity of blogging, the readers and their interactions with the blog and the blogger must also be studied. Baumer et al. (2008) suggest that future research should explore interaction—from both the blogger's and the reader's perspectives—and study the interactions between blog readers. Li and Chignell (2010) also argue that research should investigate how blogs affect consumers' social behaviour.

New product and service ideas can be sourced from the content of consumers' online messages as they discuss their preferences and priorities, what could be improved in the existing products, and what kind of products are missing from the market altogether (Kozinets 2006a). In addition to positive statements, negative comments and even resistant activity intended to damage brands can occur in virtual communities (Kozinets 1999). Nevertheless, relevant and up-to-date consumer information can be gained through analysing blogs. Since they are deeply personal, blogs also offer rich, longitudinal data about consumers, their consumption practices and the roles that certain products or services play in their lives (Kozinets 2006b). Blogs also offer guidelines for segmentation, as consumers themselves select which blogs they follow based on their attraction (Kozinets 2006a).

As greater numbers of users become involved in blogging, the range of topics discussed in blogs will continue to expand (Chopin 2008). Therefore, specific blog contexts, such as motherhood blogs, require study. Different blog groups may differ from each other quite significantly (Baumer et al. 2008), and motherhood blogs are extremely suitable subjects for research in the context of user-generated content because mothers represent regular consumers, not celebrities. In addition, research has demonstrated that motherhood blogs are extremely communal in nature (Technorati 2010).

Very few studies have looked into the content of the comments and discussion that take place in virtual communities, and even fewer have examined blogs. Hence, this study is inductive in nature and the main results are largely based on the naturally occurring data.

Motherhood blogs cover a wide range of topics. Therefore, entries that do not concern children or motherhood have been excluded from the analysis. This study focuses mainly on on-site interactivity by analysing the comment section of the blog. As bloggers are likely to comment on other's blogs, it is likely that elements of cross-blog interactivity will also be present in the comments. However, whether the comments have been written solely by readers or by other bloggers is not considered to be relevant for the aims of this study and all comments are treated equally. Thus, in this study, blog readers are defined as readers of a specific blog, regardless of whether they are bloggers themselves or solely readers.

2 Social Interaction Around User-Generated Content

2.1 Blogs in the Field of User-Generated Content

Herring et al. (2005, p. 142) define blogs as "frequently modified web pages in which dated entries are listed in reverse chronological sequence". Blogs, which represent the earliest form of social media (Kaplan and Haenlein 2010), typically consist of text and photos, but may contain other multimedia content as well (Nardi et al. 2004). Another essential characteristic of blogs is that they allow the readers to comment on the entries, facilitating conversation between and among bloggers and the audience (Chopin 2008). Emphasizing the personal nature of blogs, Kozinets (2006b) defines blogs as offshoots of personal web pages. What is missing from personal web pages compared to blogs, however, are the interactive components and frequent publishing (Karlsson 2006). Kaplan and Haenlein (2010) manage to take interaction into account somewhat better by describing blogs as the social media equivalent of personal web pages.

The number of blogs has increased exponentially since free and easy-to-use blogging software that all Internet users could use was launched in late 1999 (Karlsson 2006). The popularity of blogs can be explained by consumers' need for interactive, social content (Li and Chignell 2010). Due to the substantial number of blogs, different blog portals have been set up where bloggers can add their blog and readers can search among them using different key words. The most recent extension of blogs are microblogs, such as Twitter (Kozinets 2010). Twitter allows the user to tweet, i.e. send a message of only 140 characters at a time. Microblogs, like other social networking and "user-generated content" sites, can easily be used alongside blogs.

Baumer et al. (2008) state that rather than being a genre, blogs are a medium for multi-dimensional communication. Chopin (2008) also associates a sense of

community with blogging; in addition to the comment feature, the blog is connected to other blogs. Consequently, interactivity in blogs can be divided into two dimensions: cross-blog interactivity and on-site interactivity. Cross-blog interactivity refers to conversations between blogs. It can occur as blogroll links—links that are located in the blog's sidebar and point to blogs that the blogger follows—or as citation links embedded within an entry, or the author can point to other blogs or particular entries (Efimova and de Moor 2005; Karlsson 2006). In addition, links can be used to direct readers to non-blog web sites (Herring et al. 2005). On-site interactivity, on the other hand, refers to readers' responses to the blog entry through comments (Karlsson 2006).

The roles of the actors in blogging are rather ambiguous. It is not possible to make a strict distinction between bloggers and blog readers because many bloggers also read and comment on other people's blogs (Baumer et al. 2008; Schmidt 2007). However, this overlapping of roles is in fact advantageous for the blog interaction; when both parties have a blog of their own, the arena for dialogue can expand from on-site interactivity to cross-blog interactivity (Karlsson 2006). Commenting on another blog is an easy way to contribute to a conversation but reacting in one's own blog by posting an entry allows the blogger to elaborate on the subject further (Efimova and de Moor 2005).

Blood (2002) divides blogs into two types, filter blogs and personal blogs. Filter blogs consist primarily of links to other online information sources and the blogger's opinions of the information in question. Personal blogs, on the other hand, are more like journals or diaries in which the bloggers report on their lives and feelings (Blood 2002). Bloggers' personality is reflected through various linguistic characteristics that blog readers are able to decipher, thus making constructions on the blogger's personality (Li and Chignell 2010). Writing from a personal perspective and expressing the bloggers' subjective perceptions is more reflective and geared towards the formation of virtual communities (Blood 2002). Herring et al. (2005) discovered that personal blogs are the most common blog type, accounting for as much as 70 % of all blogs. Personal blogs deal with a wide variety of topics so specific blog contexts—such as fashion, cooking, sport, and motherhood—have become differentiated.

The number of motherhood blogs—commonly referred to as mommy blogs both in the online environment and also in academic writing—in the blogosphere has increased dramatically over the past few years (Morrison 2010). As Lopez (2009, p. 729) declares: "Mommy bloggers have officially invaded the blogosphere, luring thousands of readers daily to websites that document countless tales of parenting joys and woes." Mommy blogs not only deal with motherhood and children but also cover an extremely wide range of topics (Lopez 2009). In 2010, mommy bloggers were named as one of the most influential blogger subgroups (Technorati 2010).

The popularity of mommy blogs has been explained by their truthfulness; mommy bloggers create a more realistic picture of motherhood than that normally seen in the mainstream media (Lopez 2009). Women today approach motherhood from a radically different position than earlier generations and the Internet has given more power to mothers by enabling them to take part in redefining

motherhood (Morrison 2010). By daring to bring up the taboos and difficulties of motherhood, mommy blogs provide mothers with support and solidarity (Lopez 2009). The language used in mommy blogs is informal and narrative, often flavoured with humour and levity. The readers of mommy blogs state that they feel a closeness and loyalty to the blogger due to the intimacy of the writing (Lopez 2009).

Blogs are an effective way of distributing information because they attract tremendous attention among consumers and they may even exert influence on society at large (Hsu and Lin 2008). Consumer-to-consumer interaction that occurs in blogs is often perceived as more trustworthy than traditional marketing and advertising (Bagozzi and Dholakia 2002). Mothers are an especially attractive consumer group because they often make purchases on behalf of their entire family (Lopez 2009). Advertising in blogs, however, is a matter that invokes strong feelings. Some readers and bloggers alike condemn advertising in blogs for the fear that it will negatively affect the blog's content and the trustworthiness of blogs negatively (Lopez 2009). Bloggers who do participate in blog advertising emphasize that they only collaborate with companies that they like and believe in.

2.2   Social Interaction in the Blogosphere

Even though blogs may look like personal diaries, they should be considered as social activity (Nardi et al. 2004). An increasing number of consumers of all ages maintain social relationships through blogs (Child et al. 2011). In line with reader-response theory, a school of literary theory from the 1960s, the blog reader can be seen as not merely a passive recipient of content, but as an active agent engaging in the process of interpretation. Hence, the reality and meaning of a blog exist only through the reader's interpretation and interaction (Baumer et al. 2008).

Virtual communities have redefined the traditional concept of personal relationships. In the online environment, consumers have the opportunity to develop virtual identities that differ drastically from those they have in real life. Coupled with anonymity, this can lead to highly intimate yet unreal relationships between consumers (Romm et al. 1997). Contrary to this view, however, Li and Chignell (2010) state that in a blogging context, anonymity can actually encourage consumers to express their true selves more readily than in real life. Baumer et al. (2008) are of the opinion that the online and offline identities of blog readers are tightly intertwined. Their research revealed that blog readers found sustaining two completely different identities extremely confusing.

Blogging is socially interactive and community-like in nature because the comment feature enables conversational exchanges between and among bloggers and readers (Savolainen 2011). The possibility to comment is indeed a feature that sets blogs apart from personal diaries, to which they have often been compared (Eriksson and Kovalainen 2008). Herring et al. (2005) have pointed out that communicative exchange between bloggers and blog readers is asymmetrical

because it is ultimately the blogger who retains ownership and control of the blog's content. Unlike face-to-face communication, the online environment enables bloggers to alter entries that they have already published or to go as far as removing entire entries (Child et al. 2011). Herring et al. (2005) have argued that the comment feature certainly makes blogs interactive, and they have concluded that since blog content can be produced fast and readily, blogs have the potential to fulfil consumers' daily communication needs.

Bloggers and blog readers are closely related through writing, reading, and commenting on blog entries. Nardi et al. (2004) observed that blogs create the audience, but the audience also creates the blog. Bloggers craft entries with their audience in mind, write about topics that their readers can relate to (Lopez 2009), and sometimes even prepare entries based on readers' ideas (Nardi et al. 2004).

The interactive nature of blogs is also something that blog readers stress: 13 out of 15 interviewees highlighted conversational interaction between blogger and blog readers, rather than structural features, when asked to define the concept blog (Baumer et al. 2008). Readers expect to have the opportunity to comment on the blog entry—to add information, to express their opinion, or just to greet the blogger (Chopin 2008). While most of the blogs support the comment feature and show the submitted comments in the comments section immediately, moderation of comments is also possible. Moderation means that the blogger sorts through all the submitted comments and decides which ones to publish. This naturally hinders interaction between readers and increases the repetition of similar comments, as readers can only see other comments after the bloggers' approval. Bloggers may choose to moderate the comments to prevent spam and malicious comments (Mishne and Glance 2006).

It is evident that blog readers place certain expectations on bloggers, but perhaps surprisingly, blog readers feel that there are certain expectations on them, too. Some readers feel that they need to comment on good entries and spend a significant amount of time formulating their comments (Baumer et al. 2008). Readers are more likely to interact with bloggers to whom they feel a similarity (Li and Chignell 2010), and, unlike mass communication media, readers perceive blogs as one-to-one communications between themselves and the blogger. Thus, the activity of blogging arguably places social pressure on both bloggers and blog readers (Baumer et al. 2008).

Mommy bloggers have a unique enthusiasm for making connections and building communities (Morrison 2011; Technorati 2010). They are driven by a desire to meet and connect with like-minded people, and they are also more likely to comment on and link to other's blogs than the average blogger (Technorati 2010). The blog community develops and strengthens over time as bloggers create relationships of trust with their readers through mutual self-disclosure and reciprocal reading and commenting (Morrison 2011).

The findings of Lu and Lee (2010) support the fact that the development of a blog community takes time. The researchers discovered that a blog is merely a content aggregator for new users but acts as a social network for those who have been following the blog for longer. Park et al. (2010) state that in order to frequently

participate in blogging, blog readers must find the blog so entertaining that they lose awareness of time passing and achieve a state of flow, with flow signifying an extremely high emotional involvement in the blog.

When studying commitment in an online pregnancy and mothering community, Ley (2007) discovered that members joined the community largely to gain information and peer support. Women in industrialized countries do not receive as much offline support from friends as women from previous generations, and they often consider the advice of their own mothers dated (Ley 2007). In the age of Web 2.0, it is only natural that they seek company on the Internet. Their daily routines are governed by the circadian rhythm of the baby. For example, they may be awake at night when others are not, which emphasizes the importance of the Internet in socializing.

2.3   Theoretical Discussion Frames as Outcomes of User-Generated Content

This study's theoretical discussion frames are based on a literature review of online social interaction and discussion frames around user-generated content. The six theoretical discussion frames are social networking, drawing inspiration, sharing knowledge, providing peer support, negotiating norms, and opposing values. Figure 1 illustrates these theoretical discussion frames (see e.g., Nardi et al. 2004; Morrison 2011; Herring et al. 2005; de Valck et al. 2009; Campbell et al. 2011).

Social networking refers to fulfilling social interaction needs and building communities through blogging (see e.g., Shao 2009; Huang et al. 2008; Baumer et al. 2008). Drawing inspiration is represented as its own discussion frame because it is expected that readers draw inspiration from the blogger, sometimes unintentionally, when reading the blog as a leisure-time activity. Hence, the idea of entertainment is embedded in drawing inspiration (see e.g., Huang et al. 2008; Baumer et al. 2008).

Fig. 1 Theoretical discussion frames around user-generated content

Sharing knowledge is used in this study to refer to both posing and answering questions (see e.g., Shao 2009; Baumer et al. 2008; Huang et al. 2008; de Valck et al. 2009; Campbell et al. 2011). Providing peer support has been used as an individual discussion frame because searching for and providing peer support is expected to be prevalent in mommy blogs (see e.g., Morrison 2011; Schau et al. 2009). As peer support is based on receiving support from those who are in a similar situation in life, celebrating similarities (see e.g., de Valck et al. 2009) is embedded in it. Negotiating norms refers to presenting one's thoughts and opinions and discussion of a constructive nature. Opposing values, on the other hand, refers to hostile comments and heated debate in which the thoughts of others are not properly respected (see, e.g., Campbell et al. 2011; de Valck et al. 2009).

The conceptual framework also functions as a kind of interpretative framework. It does not prevent new themes emerging from the data; instead, it serves as a starting point for analysis. The main emphasis in this study is specifically on the message content of the blog's comments section. As Baumer et al. (2008) point out, different blog groups may differ from each other quite significantly. Previous research was not focused on the blogging context, nor specifically on motherhood blogs. Consequently, six theoretical discussion frames are treated as preliminary themes in the conceptual framework. It has been noted that the discussion frames can vary greatly depending on the context.

3 Conducting the Study

3.1 Netnography as a Research Method

Netnography is a qualitative research method designed to explore the cultures and communities that emerge through computer-mediated communications. It derives its rich data from naturally occurring, communal, cross-consumer interaction and provides information that has not been elicited by marketers (Kozinets 2002). The roots of netnography lie in ethnography, an anthropological approach that has been widely used, for example, in sociology, cultural studies, and marketing and consumer research (Kozinets 2010).

As a research method, netnography is not as time consuming, elaborate, or expensive as traditional ethnography (Rokka 2010). Plentiful data are readily available in written form. In addition to the data retrieved from the Internet, the researcher's own field notes inscribing his/her observations are important. Unlike ethnography, netnography can be conducted in an entirely unobtrusive manner without the researcher revealing his/her presence to the studied group (Kozinets 2002). Covert studies that provide authentic information are especially useful when studying sensitive research topics (Langer and Beckman 2005). Compared to focus groups and personal interviews, netnography is again more unobtrusive and realistic because the researcher has not fabricated the context of the study. Netnography

allows continual access to the research subjects and their naturally occurring behaviour in a particular online social situation (Kozinets 2002).

3.2 Flow of the Netnographic Research Process

Kozinets (2010) has detailed the stages of a netnographic study. After investigating different online sites, the researcher selects a suitable community for the study and begins observation and data generation by engaging and immersing him/herself in its activities. Even though data analysis and interpretation is classified as a separate stage, it often takes place simultaneously with data generation. Finally, the researcher writes the research report and presents the empirical findings.

3.2.1 Selection of the Blog

Kozinets (2010) has suggested six criteria for evaluating online communities and sites as potential research objects. Sites chosen for investigation should be:

1. Relevant—the site fits well to the research purpose
2. Active—the site has recent and regular communications
3. Interactive—there is communication between participants
4. Substantial—there are many participants communicating
5. Heterogeneous—there are different participants
6. Data-rich—the data is detailed or descriptively rich

Kozinets (2010) notes that it is rarely possible to meet every criterion, but instead, the researcher needs to trade off one or more of these criteria. For example, smaller communities may be less substantial and heterogeneous than larger communities but at the same time more communal, thus containing rich and purposeful data for the study (Kozinets 2010).

Morrison (2010) classifies mommy blogs into eight categories based on their accessibility and usage dimensions. The most private blogs are protected with passwords and set up mainly to share information and photographs with family. The most public blogs, on the other hand, are commercial magazine-style websites operated as revenue-generating ventures. Blogs in the middle of the spectrum are publicly accessible but they have still maintained the idea of reciprocal reading and commenting that is essential for the on-site interactivity of blogs. The blogs that fall into the middle of the spectrum were considered the most suitable for the purpose and aims of this study.

The observation of four potential motherhood blogs began in January 2013. Blogs were evaluated based on Kozinet's criterion and at the end of February 2013, the blog 'Suburban Mom' was chosen for more detailed study. According to Google Analytics, this blog has over 10,000 individual readers per month (Suburban Mom

Table 1 Evaluation of the selected Suburban Mom blog

Criterion	Suburban Mom
Relevant	All entries receive comments. Some entries provoke more comments than others
Active	14.5 entries per month. About 40 % of the entries receive 11–20 comments. The most commented entry received 195 comments
Interactive	The blogger tries to answer all the comments. Reader to reader interaction in the comment area
Substantial	10,000 readers during 1 month. Impossible to determine the number of those who comment
Heterogeneous	Some readers have a child/children, some do not. Some share the blogger's values, some do not
Data-rich	Long comments that contain significant information: thoughts, opinions, experiences, peer support, etc.

2013). Table 1 presents an overview of how the selected blog meets Kozinets' evaluation criteria.

The selected blog is relevant to the research purpose because all entries have received comments. As one of the aims of this study is to examine what kinds of entries receive the largest number of comments, it is essential that some entries provoke more comments than others. The average number of entries, calculated from the entries written from December 2012 to March 2013, is 14.5, meaning that the blog is updated roughly every other day. The number of comments on the entries varies quite a lot, but about 40 % of the entries had received between 11 and 20 comments and the most commented entry had received 195 comments. Both the updating frequency and the number of comments each entry received confirm the fact that the blog and its readers are sufficiently active for the aims of this study. The criterion of interactivity is met because the blogger tries to answer every comment she receives. In addition to this, initial observation revealed that there is at least some reader-to-reader interaction.

The size of the blog community is impossible to determine. The blog has about 10,000 individual readers each month, but the number of those who participate in the interaction is impossible to determine because readers can comment on the entries without signing in or creating an account. However, during the initial observation, it became evident that the readers of the blog are surprisingly heterogeneous. Most of the readers naturally praise the opinions of the blogger, which is understandable because people tend to read blogs with which they can identify. However, some readers mentioned that they read the blog even though they hold completely different values and make different decisions from the blogger. Some readers are going through the same life phase as the blogger, while others already have more children. Childless readers also signal their presence.

In this study, one of the most important criteria was the quality of the data. During the initial observation, it was apparent that the data from Suburban Mom were rich since the comments were more significant than superficial. Receiving hundreds of superficial comments—merely courtesies and praise, for example—

may be a problem with the most popular blogs. Baumer et al. (2008) found that while readers might feel fine only lurking (i.e. reading the blog without writing comments or interacting online) on popular blogs, they actually feel more obliged to participate in a blog they feel close to. During the initial observation, it became evident that the readers shared their thoughts, opinions, and experiences, gave each other peer support, etc., thus generating rich data. Heterogeneous readers also contribute to the generation of rich data in the blog's comment section. Hence, the fact that the blog met all the other criteria—and ensured the generation of rich and purposeful data in particular—compensated for the somewhat undefined criterion of substantiality.

3.2.2 Blog Observation and Data Generation

Observation is particularly suitable in situations where there is little or no information on the studied phenomenon. Kozinets (2006b) points out that the researcher's participation in an online community can vary greatly, ranging from unobtrusive observational netnography to introspective autonetnography, where the researcher becomes a part of the online community and thus autobiographical personal reflection forms the basis of the study. Most netnographies, however, operate between these two extremes: the researcher observes some practices of a certain online community or culture and participates in others (Kozinets 2006b). Observational netnography was chosen because the study's aim is to analyse naturally occurring social interaction in blogs: revealing the presence of the researcher might have influenced the discussion.

Observational netnography data consist of archival data (i.e. data copied from the blogs) and field-note data (Kozinets 2010). Blog observation began in January 2013 and continued until April 2013. During the observation, blog entries from the beginning of December 2012 to the end of March 2013 were retrieved from the blog's archives along with the comments they had received. Only the entries that dealt with motherhood and children were collected for further analysis. Retrieving old entries continued until no new themes emerged from the data. As the data started to repeat itself, it became evident that the saturation point had been reached. The data in this study was collated on Microsoft Word using Times New Roman, font size 12 and line spacing 1. The total collected data amounted to 211 pages. Archival data consisted of 54 blog entries and 1,377 comments. The field-note data consisted of the researcher's own reflective observations and descriptions of photos that were embedded in blog entries.

3.2.3 Data Analysis and Interpretation

In a qualitative study, data analysis and interpretation is just as important a stage as data generation, even though the latter is often described in more detail in research reports. Data analysis and interpretation typically take place simultaneously with

data generation (Gummesson 2005) as the researcher aims to understand the communal and cultural contexts of the studied online community throughout the process of data generation (Kozinets 2010). In fact, it is evident that data analysis and interpretation run through the entire research process (Moisander and Valtonen 2006).

Netnography is not tied to any particular method of data analysis. Instead, netnography encompasses multiple methods and analytic techniques that are chosen on the basis of the research questions (Kozinets 2006b). Both data analysis and interpretation can be conducted in a number of different ways. Data analysis and interpretation is often described as an iterative process that involves rejecting and refining possible interpretations and generating new questions. New data is collected until emerging interpretations are finally confirmed (Muñiz and Schau 2007; Ödman 2007).

In this study, the rich empirical data was analysed using categorization. Categorization—identifying passages of text as belonging to or representing a more general phenomenon (Spiggle 1994)—took place when reading the comments for the first time. Initial categories and observations about the contents of the comments were recorded in the margins as field notes. Spiggle (1994) states that while a single comment may exemplify multiple categories and thus have multiple labels, some parts of the comments contained no meaningful information and remained uncategorized. Spiggle's statement was justified in this study; long comments in particular contained multiple categories and some parts of comments were not categorized.

A tentative pre-understanding of both the subject and the disciplinary knowledge were the starting points for interpretation. Pre-understanding is always subjective as it is based on the traditions that shape the way one understands the world (Moisander and Valtonen 2006; Ödman 2007). Moisander and Valtonen (2006) also suggest that interpretations never emerge purely from the data but rather through an interpretative framework. Dubois and Gadde (2002) emphasize that while most data collecting activities are directed towards searching data for material that supports the conceptual framework, researchers should concentrate more on discovering new and perhaps surprising ideas from the collected data. In this study, the interpretative framework did not restrict the analysis—new and differing themes emerged from the data as well.

3.2.4 Writing, Reporting, and Presenting the Findings

The question of language was taken into careful consideration in this study. The blog and the comments analysed in this study were written in Finnish, the native language of the researcher. This ensured understanding of all the expressions as well as the tone and the more discreet nuances of the texts.

3.3   Quality Assessment of the Study

Netnography's unique feature of unobtrusiveness has caused much discussion on how to determine its ethical guidelines. The ethical concerns of netnography are based on two fundamental issues: whether online forums should be considered public or private sites and what constitutes informed consent in the online environment (Kozinets 2002).

Langer and Beckman (2005) proposed that if access to an online forum is restricted, it should be treated as a private site and permission to use the texts for a study should be obtained. If access is not restricted, the site can be defined as a public communication and consequently, it can be assumed that informed consent has already been obtained. The latter is the case in this study; all Internet users are able to read and post comments without registering or signing in, and therefore all content can be treated as public. Thus, there was no need to ask for separate permission for collecting, analysing and citing the comments.

Kozinets (2010) states that the researcher should always disclose their presence and intentions when conducting participant-observational netnography. However, this study was a purely observational netnography and was partly based on archival research and the downloading of existing posts. The readers were not directed or deceived by the researcher in any way since there was no interaction between the researcher and the community. Therefore, there was no need to alert the blogger or the blog readers to the presence of the researcher. Moreover, consciousness of the presence of the researcher could have influenced the social interaction in the blog.

Kozinets (2010) recommends the use of ten evaluation criteria for assessing the quality of a netnographic study: coherence, rigour, iteracy, groundedness, innovation, resonance, verisimilitude, reflexivity, praxis, and intermix. The evaluation criteria and the actions that were taken to ensure the quality of this study are presented in Table 2.

The first criterion, coherence, means that each interpretation should be free from internal contradictions and that observations should present a unified pattern with other collected netnographic data (Kozinets 2010). In this study, the collected data

Table 2 Ensuring the quality of the study

Criterion	Actions taken
Coherence	Observing one blog and its readers
Rigour	Carefully studying the method of netnography
Literacy	Reviewing past literature on user-generated content and blogs
Groundedness	Linking theory, data, and empirical findings in a clear manner
Innovation	Focus on blogs, especially their readers
Resonance	Considering the tone of the comments during interpretation and writing
Verisimilitude	Representing mommy blogs truthfully and accurately
Reflexivity	Acknowledging the researcher's subjective interpretation
Praxis	Aiming to inspire research on blogs and social interaction online

forms a coherent whole, as only one blog and its readers were observed. Observing one blog enabled the researcher to be more deeply absorbed in the data. The next criterion, rigour, implies that the researcher should understand the methodological standards of netnographic research and what is required at each stage (Kozinets 2010).

Literacy highlights the fact that relevant knowledge of past literature and research approaches increase the study's credibility (Kozinets 2010). The past literature on user-generated content and blogs was reviewed at the beginning of the research process. Blogs are a relatively new subject of research and it was somewhat difficult to find information directly related to them. Therefore, it was decided to deal with user-generated content and virtual communities in general in the theory. Groundedness is the extent to which the theoretical representation is supported by data, and the links between the data and theory are clear and convincing, i.e., the researcher has made contact with the studied group and a gained deep understanding of the members and their behaviour (Kozinets 2010).

Innovation means that a netnographic study should seek to extend current knowledge by providing new and creative ways of understanding systems, structures, experience, or actions (Kozinets 2010). As mentioned above, blogs are a relatively new arena for research and therefore studies similar to this one have not been conducted. Given the limited resources, this study contains a certain degree of novelty since readers in particular have remained unexplored. Resonance refers to conveying a personalized and sensitizing connection with the online community under study instead of portraying the members as lifeless stereotypes. This can be achieved by taking emotions into account in the researcher's field notes and maintaining the same emotional pitch in the narrative (Kozinets 2010). Above all, resonance was ensured during the interpretation process.

Verisimilitude is perhaps the most important criterion as regards the quality of the text. It refers to the text's ability to convey a believable and life-like sense of the cultural and communal contact to the readers (Kozinets 2010). This study aims to represent mommy blogs and the social interaction in them as truthfully and accurately as possible. Reflexivity acknowledges that as observers—and sometimes as participants—netnographers play an important role in the research process because the researchers' own reflective field notes are an essential part of the analysed data. A netnographic text should therefore stay open to alternative interpretations by conveying the possible conflicts and differences that emerge during analysis (Kozinets 2010). It was acknowledged that the interpretations in this study are subjective interpretations. Other researchers may interpret the data differently. The relationship with the blog context was also taken into consideration when defining what blog context would be chosen for the study. The fundamental characteristics of blogs and the activity around them are familiar to the researcher but the context of motherhood is not. The fact that motherhood blogs could be observed from an objective point of view without presuppositions was considered advantageous for the study.

Kozinets (2010) defines praxis as practical action aimed at social betterment, referring to the idea that a netnographic text should inspire and empower social

action. This study shows the growing importance of blogs and highlights the opportunities they offer for studying naturally occurring interaction in the online environment. Finally, intermix refers to the fact that both online and offline social interaction is present in the community members' daily lives. Hence, this interconnection should be taken into consideration in the text if it is relevant to the research topic (Kozinets 2010). This study aims to describe and analyse social interaction specifically in an online environment and therefore offline social interaction was not taken into account. However, it was noted that connections to offline social life are indeed present in the online environment.

4   Empirical Discussion Frames in Motherhood Blogs

During the data analysis and interpretation, eight empirical discussion frames were identified, namely introducing and welcoming, exchanging courtesies, drawing inspiration, searching for information, sharing knowledge, providing peer support, expressing opinions, and opposing values. It is notable that the empirical discussion frames are not mutually exclusive; it is extremely common for two or more themes to exist in one single comment.

Figure 2 illustrates the identified empirical discussion frames that emerged from the selected blog's comment section.

The contents of the comments vary in depth and in perspective. Introducing and welcoming as well as exchanging courtesies are parts of socialization and were separated as their own frames from the theoretical discussion frame of social networking, which was used to refer to fulfilling one's social interaction needs (see e.g., Shao 2009; Huang et al. 2008; Baumer et al. 2008). Even though these two
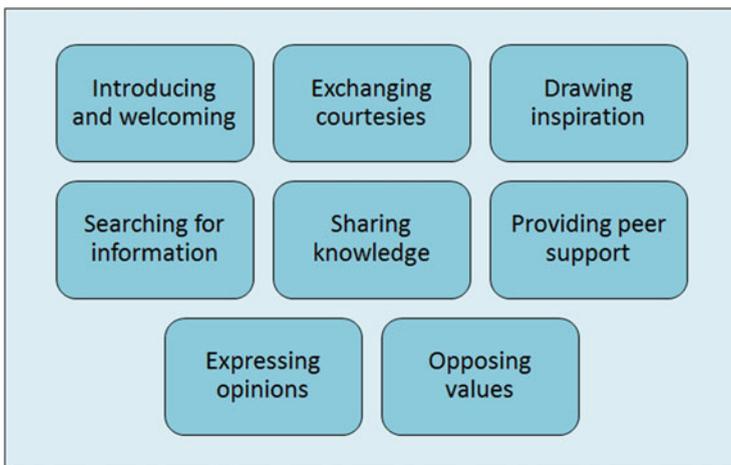

Fig. 2 Empirical discussion frames in motherhood blogs

discussion frames are rather superficial in nature, both can help in establishing relationships between the blogger and the readers. In addition, introducing is a means of differentiating oneself from other readers, whereas exchanging courtesies shows that readers enjoy reading the blog. It is also notable that these discussion frames generally occur with other, more factual, discussion frames.

Drawing inspiration, a discussion frame that already existed in the conceptual framework, refers to situations when the readers unintentionally draw inspiration from the blog entries (see e.g., Huang et al. 2008; Baumer et al. 2008). Images play an important role because readers are often inspired by the things they see in pictures, regardless of whether they are mentioned in the text or not. In addition, inspiration is drawn from the blogger's choices and her family's way of life. The discussion frames of exchanging courtesies and searching for information' often accompany drawing inspiration.

The empirical discussion frames of searching for information and sharing knowledge are substantially more informative than the above-mentioned discussion frames. They emerged and split from the theoretical discussion frame of sharing knowledge (see e.g., Shao 2009; Baumer et al. 2008; Huang et al. 2008; de Valck et al. 2009; Campbell et al. 2011) because they both contain large amounts of factual content and serve fundamentally different purposes. Many of the topics in searching for information are product-centred. Readers pose questions about products presented in the blog entries and shown in the pictures. In addition, wider questions related to blog entries as well as enquiries about the blogger's choices are presented. In this study, sharing knowledge refers to answering questions. It is carried out both by the blogger and the blog readers. Readers share tips and advice as well as their own experiences with products or their alternatives that have been presented in the blog.

The discussion frame providing peer support was expected to emerge from the data as being characteristic for mommy blogs (see e.g., Morrison 2011; Schau et al. 2009; de Valck et al. 2009). Readers clearly express receiving peer support from the blog but also provide it to the blogger and other readers by sharing their own personal and intimate experiences. Blogs often attract like-minded people or people who are in similar situations in life. However, as there are so many sensitive issues and uncertainties—especially during the first months—related to motherhood, it seems that peer support is much more prevalent in mommy blogs than, for example, in fashion blogs that are perhaps currently the most popular personal blog type.

Expressing opinions and opposing values are both related to sharing one's thoughts and opinions on the topic of the entry. Expressing opinions refers to discussion that is civil, where all parties argue their opinions well and where the opinions of others are heard and respected. In the conceptual framework, this discussion frame was called negotiating norms (see e.g., Campbell et al. 2011; de Valck et al. 2009). However, expressing opinions was seen as a more descriptive name for this discussion frame and therefore it was renamed. Opposing values, on the other hand, remained the same from the conceptual framework. It refers to comments that are hostile towards the blogger and where the readers' annoyance

towards the blogger and/or the subject of the entry is visible because the comments are emotive and others' opinions are not respected (see e.g., Campbell et al. 2011; de Valck et al. 2009). Consumers may be braver in expressing their opinions in an online environment but opposing values can also result from misunderstandings caused by the lack of social cues on the Internet. Expressing opinions is the more common of the two discussion frames, but opposing values also appears, especially after entries deal with controversial subjects.

The discussion frames searching for information and sharing knowledge are perhaps the most relevant discussion frames from the marketer's point of view. Relevant information on the readers' preferences can be sourced from blogs' comments sections as they discuss the positive and negative features of specific brands and make brand comparisons. The importance of the images is also notable. It seems that not all readers focus on the text—the main point of a blog—but more on the pictures. Therefore, greater visibility can be gained if readers see products in the blog's pictures.

As expected, lottery entries were among the most commented entries of the blog. Perhaps surprisingly, however, the lottery entries ended up in the third and the fifth places; two of the most commented entries were thus normal entries. The first and the second most commented entries dealt with rather controversial topics, whereas the fourth most commented entry tackled a topic somewhat more sensitive in nature. Positive and negative comments raised the overall number of comments that an entry received. The most prevalent discussion frames in the most commented entries were providing peer support and expressing opinions.

5 Summary

The purpose of this study was to describe and analyse the emerging discussion frames in motherhood blogs. Blogs are one form of a larger phenomenon of user-generated content that has changed the way consumers communicate with each other. This study focused specifically on interaction and interactivity in motherhood blogs because these blogs are especially communal in nature.

The conceptual framework for this study was constructed from the theoretical discussion frames identified in earlier research. These discussion frames formed the basis for the outcomes of engaging in user-generated content among motherhood blogs. Based on the literature review, the discussion frames in the context of user-generated content were social networking, drawing inspiration, sharing knowledge, providing peer support, negotiating norms, and opposing values.

Netnography—an observational qualitative research method—was chosen as the research method because it is designed for exploring cultures and communities that emerge through computer-mediated communications. The Finnish blog Suburban Mom was selected as the research object. The empirical data contained 54 blog entries and 1,377 comments. Data were analysed using categorization.

Eight empirical discussion frames emerged from the empirical data, namely introducing and welcoming, exchanging courtesies, drawing inspiration, searching for information, sharing knowledge, providing peer support, expressing opinions, and opposing values. The findings revealed that controversial and sensitive topics attract the largest number of comments and that positive and negative comments raise the overall number of comments.

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Strategic Partnerships in the Construction Industry in Latvia

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Abstract In the modern world, where both business sustainability and competitiveness are among the main goals, none of the companies can survive without establishing some kind of informal or formal partnership with others, thus influencing the whole value chain. Meanwhile, business diversification has led to a multivariate construction industry structure challenging the traditional division of roles. Thus, the objective of the study was to establish the research methodology for the assessment of strategic partnerships, as well as to carry out empirical study on the extent to which the existing strategic partnerships influence the industry's value chain. There was carried out an analysis of the construction industry's structure in Latvia on the basis of the statistical data, developed the methodology for partnership analysis, approximated and analysed the major partnerships, and carried out the market stakeholders survey and focus group discussions to substantiate the findings. The study highlights partnership differentiation both by structure and strategic goals. It was discovered that customer-focused partnerships tended to last much longer leading to customer loyalty and repeated business, while profit-focused partnerships were often only a temporary solution, the major influencing factor for any successful partnership being the alignment of the strategic goals of all involved partners.

1 Introduction

Construction industry is both an important part of any national economy and one of the most reliable indicators of its wellbeing. As a part of the national economy, it creates and improves the infrastructure for economical growth, provides jobs, as

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well as ensures a part of the national budget in form of taxes and duties. At the same time, the construction activity reflects the condition of both private and public sector, their financial and operating ability to satisfy their needs in terms of building new or reconstructing the existing housing, industrial buildings, financial centres, and infrastructure in general. In the modern world, where both business sustainability and competitiveness are among the main goals, none of the companies can survive without establishing some kind of informal or formal partnership with others within the same industry, thus influencing the whole value chain.

In construction industry two major trends are transforming the landscape. Firstly, in the incoming supply chain, the suppliers of construction materials are often the producers themselves, who not only develop the logistics side of business in order to benefit from direct sales, but also try to establish information exchange with construction companies to obtain data on the final consumer satisfaction levels, as well as to ascertain that their innovation direction corresponds with market development forecasts. Thus, disintermediation is more and more used for strategic development-focused partnership establishment. The second of the trends is business diversification leading to a multivariate construction industry structure where the role of the developer is often undertaken by municipalities and funding establishments. Meanwhile, construction companies themselves may often develop and even fund the construction projects in cases when the perceived market demand is not satisfied by traditional developers, as a result quite often offering leasing facilities directly to final consumers who might be interested in their projects.

Thus the objective of the study was to establish the research methodology for the assessment of strategic partnerships in the construction industry, as well as to carry out empirical study on the extent to which the existing strategic partnerships influence the industry's value chain. To reach the objective, there was carried out an analysis of the construction industry's structure in Latvia on the basis of the statistical data, developed the methodology for partnership analysis, approximated and analyzed the major partnerships, and carried out market players' survey and focus group discussions to substantiate the findings.

2 Construction Industry's Structure

Recently there has been plenty of research on various aspects of business environment in Latvia, showing that it is not only developing fast, but also managing quite successfully, due to attainment of EU funds, to adapt to ever increasing requirements of the European Union. The business activity registration has improved dramatically over the last 5 years with now only 3 days and much less effort and investment needed because of online service (Janovs and Zarina 2013). The number of active construction businesses in Latvia clearly reflects the national economy's development trend, nearly halving in the period from 2006 to 2008 (increasing from 4,011 to 5,924 registered companies correspondingly), then falling back dramatically to 4,248 registered companies in 2010, and recovering steadily over the next

4 years to reach 5,210 in 2013 (Ministry of Economics 2014). According to the national Register of construction businesses, the vast majority of construction businesses in 2013 were limited liability companies (4,825 out of 5,210), while only 2 % were general partnerships; meanwhile sole traders, shareholding companies and foreign companies each formed only 1 % of the total number of registered companies (Register of Construction Merchants of Latvia 2014).

According to the Central Bureau of Statistics of Latvia (2013) data on the number of companies operating in the area of construction (including those not holding permits for specialised works regulated by the national or EU legislation) the number of construction related businesses was 7,188 in 2012, 34 % of which dealt with the construction of buildings, 10 % with engineering, and 56 % with specialised construction works. In 2012, the turnover in the construction industry in Latvia was estimated 3.7 billion euros, with the added value forming 22.18 % of the turnover, while the total amount of goods and services purchased within production was 2.97 billion euros (Central Bureau of Statistics of Latvia 2014). Thus, it can be established that the share of the suppliers of goods and services within the industry formed 77.82 % of the whole construction production value in 2012, highlighting the importance of intra-business cooperation.

In 2012, the total number of employees in construction in Latvia was 59.4 thousand people, accounting for 412 million euros in labour costs, with average 6.9 thousand euros per year per employee in labour costs and 14 thousand euros per year per employee in added value. Sector specifically, the highest labour costs were in engineering (on average 10,840 euros per person per year), yielding the highest return in form of the added value (20,530 euros per person per year). The corresponding data for the construction of buildings were 6,090 and 14,000 euros, but for the specialised construction—5,357 and 10,430 euros per person per year. The engineering sector had also the largest companies in terms of the number of employees (on average 20.22 people per company), while in the building construction sector the corresponding number was 8.72 people (not much different from the national average of 8.26 people per company within the construction industry), but the specialised construction sector tended to have the smallest companies with the average of 5.88 people.

In the whole industry, 82 % of the companies qualified as micro-companies (with less than ten employees), while 14.44 % were small companies (10–49 employees), 2.89 % were medium companies (50–249 employees). Only 13 companies qualified as large (exceeding 250 employees), of which only three operated principally in the construction of buildings, but ten of them in engineering (CBS, estimated data for 2012). It should be noted, that though the average added value per person per year increased with the size of the company (7,563 euros in micro-companies, 8,886 euros in small companies, 14,703 euros in medium companies, and 18,458 euros in large companies), the turnover statistics per person per year are quite different—each employee ensured yearly turnover of 86,761 euros in the micro-companies and 79,484 euros in the large companies, while the corresponding figure for the medium companies was 65,361 euros, and for the small companies— 41,552 euros (CBS, estimated data for 2012). Thus, it was clearly established that

not only the company size and its operations specifics should be included in the partnership research methodology, but also the intra- and inter-company relationships established and maintained by their employees.

It should be noted that the Doing Business index ranked Latvia number 24 (out of 189 economies), awarding high ranks for getting credit (rank 3), trading across borders (17), enforcing contracts (21), registering property (33), resolving insolvency (rank 43), paying taxes (49), starting a business (57), protecting investors (68) and dealing with construction permits (79) (International Bank for Reconstruction and Development/World Bank 2014). As the engineering and specialized building works are commonly carried out on the grounds of public procurement due to the national and local development strategies, the research results depicted in the present paper mainly focus on the construction and re-construction of residential and non-residential buildings. As shown in Table 1 above, the number of permits issued for new construction in 2012 seldom exceeded the number of those issued for reconstruction. These figures are important for the construction industry's value chain as they depict two major factors—the activity of the owners of existing buildings and the demand or perceived demand for new buildings. During the company survey, there were distinguished three major groups of clients—natural persons, businesses and public institutions. There was approximated that natural persons were the clients only in the very first two categories with 36 % of construction projects of one-dwelling buildings and 49 % of construction projects of summer cottages and garden houses. Similarly, public institutions (incl. municipalities) accounted for estimated 93 % of traffic and communication building projects, and for estimated 95 % of public entertainment, education, hospital or institutional care construction projects. The rest of all the permits were issued to

Table 1 Building permits issued in Latvia, 2012

Type of construction	Total	For new construction
Residential buildings		
One-dwelling buildings (excluding summer cottages and garden-houses)	2,072	1,317
Summer cottages and garden-houses	434	266
Two- and more dwelling buildings	190	43
Residences for communities	18	5
Non-residential buildings		
Hotels and similar buildings	58	32
Office buildings	100	23
Wholesale and retail trade buildings	164	61
Industrial buildings and warehouses	441	246
Traffic and communication buildings	53	30
Public entertainment, education, hospital or institutional care buildings	246	43

Source Central Bureau of Statistics of Latvia (2014)

various types of businesses, majority of them being limited liability companies, but also construction companies themselves (undertaking estimated 35 % of all new construction) and financial institutions (undertaking estimated 18 % of all new construction). Thus, the type of the client as well was established as a major factor to be included in the analysis of the construction industry's value chain.

3 Methodological Approach

The research depicted in the present paper was based on two fundamental concepts—the industry's value chain and the strategic partnerships. According to the famous definition by Michael Porter, the idea of the value chain is based on the process view of organizations, the idea of seeing a manufacturing (or service) organisation as a system, made up of subsystems each with inputs, transformation processes and outputs (Porter 1985). A more modern approach tends to use the concept of the supply chain instead to include all aspects of input, transformation and output processes (Nagurney 2006; Blanchard 2010); nevertheless the authors of the present paper prefer to use the concept of the value chain as to refer only to the value of the construction industry in general, not the particular activities that the construction consists of, which must become the subject of a much broader study.

At the same time, the concept of strategic partnerships is used in a much broader sense than common understanding of a formal arrangement between two or more businesses to combine strategic management with internal and external partnerships, whereas formal or informal, with the key stakeholders. A key stakeholder is an individual or group that can materially affect or e affected by a company's actions, decisions, goals, policies, or practices. Strategic stakeholders are those stakeholders that are vital to the organization and to the specific set of opportunities and threats that it faces at any specific point in time (Fleisher and Bensoussan 2003). Tyson and York substantiated that the notion of 'partnership' has come to be used as a way to describe an approach characterized by a unitary frame of reference, and a strong desire to harness the energy and commitment of employees to the flexibility and change orientation necessary for business survival (Tyson and York 2000).

Yet, not solely the employees influence the internal processes of a company. Dale describes distinction between external and internal suppliers and customers, where the later become part of quality management system providing feedback on goods produced and services provided (Dale 2003). The quality management system ensures customer satisfaction through learning, where 'strategic learning is a dual process of action and learning. Both loops operate simultaneously but are not often well synchronized (Carnall 2003). Yet, learning leads also to approximation of customer needs and further to innovation, which creates a new resource (Drucker 2011). Strategic inter-company partnerships allow for the use of each other's internal (and external) resources for mutual benefit. Kaplan and Norton describe how 18 natural business units of a company and 14 of its strategic partners

used the Balanced Scorecard to align strategic objectives and reached 17–19 % increase in business within a year. Yet, the execution of the strategy is perceived as much more important than its design (Kaplan and Norton 2001).

Thus, the company survey was carried out to obtain data for the multivariate analysis on the following aspects:

- The level of formalization of the partnership (percentage of the business operations covered with formal contracts)
- The vertical and horizontal integration of inter-company partnership within the specific field of operation (the ability of the partnership to provide the final product from the raw material to handing over to customer)
- The existence of defined strategies in the partnering companies
- The strategic focus (profit, customer, or business opportunity orientation)
- The managerial focus (the employee awareness of and participation in the strategy implementation)

There were surveyed nearly 23 % of the companies working in the building construction branch of the industry. The survey data were analysed on the basis of the size and the strategic focus of the company, further the results were discussed in focus groups with the representatives of the major partnerships (involving 6–15 partners).

4 Partnership Development Characteristics

The study showed that the concept of strategic partnership is well-known to most of the surveyed companies, and in most cases the companies had not only well defined strategies, but also some kind of strategic management system in operation ensuring employee, supplier and client awareness of the strategic objectives, mission and vision of the company. It should be noted, that the partnerships differed both by their structure (extent of integration, level of the formalization of the partnership) and the strategic goals (focus on increased profits, business opportunities, or customer satisfaction). Most partnerships covered from 75 to 85 % of the industry's value chain, but preferred what may be called a 'lean' partnership avoiding intermediaries such as logistics and re-seller companies, except cases where raw materials came from abroad and were distributed by a branch office of a foreign company or an official distributor. As well, the strategies could very seldom be defined as 'aggressive' aiming to gain a more significant market share.

One of the most peculiar findings of the study was the overall preference (96 % of all respondents) for cooperation both horizontally and vertically on semi-formal (68 %) or even informal basis (28 %). The discussion of the issue in the focus groups with the representatives of the major partnerships revealed that such approach was due to the general specifics of the construction industry, where the participation in an officially formalized partnership could lead to an exclusion of all of the partners from public procurement tenders in cases where any company of the

partnership had preliminary participated in preparation of the tendering documents. In regular market conditions this regulation would apply mainly to public procurement carried out by state and municipal institutions, as well as state-owned companies. Yet, in Latvia a large part of all construction and reconstruction is co-financed by the EU funds in private area as well, for example, the thermal insulation of the blocks of apartments; and in such cases an official public procurement procedure is applicable.

Another reason mentioned for non-formalization approach to strategic partnerships was the anti-monopoly legislation, which does not differ from the legislation in force throughout the European Union and the EEA, but hinders the establishment of large-scale formal partnerships that could risk gaining a monopoly position in the very small Latvian market and consequently losing part of their freedom of operation. Therefore, for national-scale projects companies tend to create a group offer based on the agreement of intention, but formalize their partnership only afterwards, when the construction project has been awarded. In such cases, even if one of the partners is excluded because of preliminary connection with the tendering documentation (or just simply does not qualify due to other reasons), the other partners still have a chance of winning the contract. Moreover, as in public procurement tenders only the main or lead partner is prohibited from submission of more than one offer, the small specialized companies may even sign contracts of intention with all the tender participants, in such a case getting their share of the deal regardless which of the partners wins.

The study showed that the strategic partnerships and corresponding strategies adopted may be distinguished in three broad categories. The first group included short-term profit-focused partnerships, formed with an objective to serve a particular customer need at a particular moment, commonly in the form of a particular project, e.g. public procurement tenders or large-scale projects. These partnerships were characterized by a rather or very high level of partnership formalization—typically in a form of formal contracts between the developer (usually a public or municipal organization or a bank) and the construction company. The formalization of the construction company's relationships with its suppliers depended on whether it was required by the developer. Within these partnerships, the strategic goals were well aligned and clear to all stakeholders covered by the formal agreements.

At the same time, several deficiencies were observed—for example, in such relationships there nearly always was no place for flexibility and innovation, as the works were strictly described in the contract. The quality mostly depended on how well the developer had prepared the technical specification, as for most such developers (public institutions, municipalities, banks) there was a fixed budget for each particular project. Most of the companies admitted that they would usually increase the profit margin by 10–20 % just in case they needed to cover expenses not foreseen by the developer. Such approach was regarded negatively as it decreased the competitiveness, nevertheless it was widely practised. As well, the employees were not required to participate much in decision making nor obtaining feedback on customer or final consumer needs or satisfaction.

The second group included medium-term partnerships with strategies that were typically business-opportunity focused. Such partnerships commonly included companies with operation differentiation, which allowed benefitting from both customer feedback and innovation implementation not solely within the particular branch of industry, but also other branches or even other industries. Contrary to the profit-oriented partnerships, the overall level of formalization in the business-opportunity focused partnerships was rather insignificant, as the companies believed that set prices and procedures may hinder or even endanger efficient use of opportunities. As well, employees were expected and encouraged to communicate at all levels between the companies, and particular measures (e.g. industry sports games) were introduced to promote this communication.

The main deficiency observed in these partnerships was the sense of insecurity resulting from the lack of partnership formalization. This insecurity was observed both at the lower levels of supply chain, as the companies had no guaranties for the future use of their innovations, as well as within the construction companies themselves in their relationships with employees. Quite often the strategies were well defined within each particular company, but no formal implementation mechanism provided in subordinate documents, such as labour contracts and job descriptions. Only the long-term employees and the management of the companies were positive about being aware of the company's strategy and inter-company cooperation procedures. Nevertheless, those aware of partnership relationships could quite freely on informal basis share the company's resources with their counterparts, as well as borrow the resources from partner organizations.

The third category distinguished was the customer-focused partnerships, which tended to have long-term strategies. Similarly to the business-opportunity focused partnerships, they had a rather low level of partnership formalization in general, yet aligned strategic goals and well-formulated guidelines for communication both with customers and within the partnerships. One of the largest distinctions from business-opportunity focused companies was the code of conduct included in job descriptions establishing not only the set of rules for working inside the company, but also for dealing with a clearly defined set of counterparts in partner companies. Another distinctive characteristic was the horizontal cooperation with the companies that would be commonly perceived as competitors. For example, in cases of not being able to satisfy the customer's desire within a reasonable time, employees were delegated the right to recommend the customer turning to an established counterpart in a partner organization. On the other hand, there were established initiatives and remuneration systems for finding innovative solutions.

The major setback encountered was that despite well-aligned mission, vision and strategic goals, the companies tended to have somewhat obscure framework for their implementation, as they usually had totally different sets of short-term goals, which were quite often contradictory and led to establishment of parallel short-term profit-focused or medium-term business opportunity-focused partnerships. Nevertheless, on the incoming supply chain side, this kind of partnerships gained the most positive references due to the well-established information circulation on the customer needs, as well as because of the certainty of return on investment in

innovations as those were developed in close cooperation with their further users (construction companies and end-users).

5 Conclusion

The study showed that the concept of a strategic partnership is well-known to the most of the surveyed companies, yet the partnerships differed both by their structure (extent of integration and level of the formalization of the partnership) and the strategic goals (focus on increased profits, business opportunities, or customer satisfaction). It was discovered that the customer-focused partnerships tended to last longer leading to customer loyalty and repeated business, while the profit-focused partnerships were often only a temporary solution. It was concluded that the major influencing factor for any successful partnership was the alignment of the strategic goals of all involved partners. If this alignment was not to be fully reached due to the conflicting interests of partners, the partnership was doomed to internal uncertainty, instability and the resultant short lifespan.

It is notable, the formalization of the partnership in short-term relations provided some assurance of the responsibility of each party, yet eliminated flexibility of operation and innovation, thus was not preferred in longer term partnerships. Though the strategic focus, level of formalization and integration of the partnership played an important role in the long-term partnerships, they did not have much influence if the partners did not cooperate within the same framework. At the same time, it was concluded that regardless the focus of the partnership, it was perceived as successful if it met the stated goals, regardless their focus on profit, business opportunities or customers, in which case it served as basis for further inter-business cooperation and formation of new strategic partnerships. At the same time, it should be noted that long-term customer-focused strategic partnerships lead to a phenomenon that might be called internal-formalization of externally informal relationships. This phenomenon might be due to just the small size of Latvian construction market and the companies' reluctance to gain the monopoly status, as this may lead to partial loss in the freedom of operation, nevertheless it requires a much deeper study.

As well, it should be noted that both the survey and focus group discussion results highlighted the existence of a multi-layered industry structure with the companies establishing short, medium and long-term strategic partnerships at the same time with the same or different sets of partners for different purposes. It should be noted that none of the companies was involved in only one partnership, the majority (58 %) of them participating simultaneously in 5–10 partnerships (covering estimated 50–85 % of the industry's supply chain), while 30 % indicated 2–4 existing partnerships (covering estimated 40–70 % of the industry's supply chain) and 12 %—more than ten partnerships (covering estimated 65–95 % the industry's supply chain). It may be ascribed to the tight market competition of Latvia that the existence of any signed business-to-business contract regardless its

subject is perceived as basis for informal partnership. At the same time, the focus group discussions revealed that such contract-initiated informal relationships indeed extended outside regular contractual relationships, involving communication on a much broader range of subjects than the fulfilment of the contract. As well, it should be noted that Latvian companies seldom changed the partner composition and/or the established goals within the existing partnerships, giving preference to the establishment of new parallel partnerships if needed, and maintaining the informal relationships even after the termination of the contracts.

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A Proposed Biometrics Technologies Implementation in Malaysia Internet Banking Services

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Abstract The security risks of Internet banking have always been a concern to the service providers and customers. One of the main issues related to Internet banking in Malaysia is the weak security of the Internet banking application. Therefore this study will investigate further the solution to enhance the security issues in Internet banking services by proposing the biometrics technology implementation. In this work we begin by analyzing user authentication methods being used currently in Internet banking, in order to propose a multi layered authentication technique which integrates to suit different Internet banking services based on risk assessment criteria's and other constraints. Multi-layered authentication in the Internet banking context refers to the requirement of multiple login names, passwords, and biometrics factors. Many systems utilize a combination of these methods in order to increase the level of security. Thus, a possible option is to introduce biometric authentication.

Keywords Internet banking • Biometrics • Security • Authentication • Phishing

1 Introduction

The Malaysian banking sector is under the supervision of Bank Negara Malaysia and is licensed under the Banking and Financial Institutions Act 1989 (BAFIA). The sector includes commercial and merchant banks, finance companies, discount houses and money brokers which act as financial intermediaries (BNM 2009). The banking sector accounted for about 70 % of the total assets in the financial system at the end of 1999 and is the primary source of financing for the domestic economy. The sector comprised of 27 commercial banks (19:100 % owned by foreign entities and 8:100 % owned by local entities) in the year 2012 (BNM 2012). Thereafter, there was a merger of domestic banking institutions which significantly reduced the number to ten commercial banks, ten finance companies and nine merchant banks. Currently, about 75 % of the banking sector's market share (total assets and total

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deposits) are controlled by domestic banking institutions (excluding the discount houses) (BNM 2009).

The banking sector is being transformed by developments in telecommunications and information technology. Electronic banking has become the ultimate service delivery system to fulfill the needs of banking customers due to the explosive expansion of the Internet and computer usage. The Malaysian government has structured a legal framework for Internet banking services as a result of the competitive nature of the banking sector.

The Malaysian Central Bank authorized domestic commercial banks on first of June 2000, to offer Internet banking services. The largest domestic bank in Malaysia, Maybank, became the first Malaysian bank to offer Internet banking services on June 15th 2000. By the seventh of August 2002, eight Malaysian commercial banks started providing Internet banking services, including Alliance Bank, Ambank, Bumiputra-Commerce Bank, Hong Leong Bank, Malayan Banking, Public Bank, RHB Bank, and Southern Bank (Suganthi and Balachandran 2001).

In Malaysia, adoption of Internet banking is comparatively low and the main determinants for adoption have not been researched much. This can be supported by Zanariah et al. (2012) and Raman et al. (2008) who categorized Malaysia as among the developing countries and the recent statistics show that the adoption of Internet banking in Malaysia is still low in spite of various initiatives made by financial institutions to attract users. Despite all the advantages of Internet banking, studies by Mohan et al. (2013) and Noorizan et al. (2012), suggests that general usage of Internet banking is still not in line with the growth of the Internet banking services in Malaysia. Hence, Internet banking development is still at the early phase though the electronic transformation has begun in Malaysia. Furthermore, the banking industry is finding it difficult to improve the dissemination of Internet banking (Ndubisi and Sinti 2006).

2   Malaysia Internet Banking Threats and Issues

There are a few security issues occurring in Malaysian Internet banking such as Online Identity Fraud or Phishing. *Phishing* or online pilfering of identity is the malevolent attempt of baiting mass audiences into misleading websites by thousands of emails sent by fraudsters. Criminals create websites that appear to be from trusted organizations and blast deceptive emails to random email addresses in an attempt to commit online identity fraud or *Phishing*. Connections to websites that appear to be similar to the websites of real organizations deceive customers into providing precision information such as user IDs, passwords, and TACs. Criminals are able to access the customer's bank account by using this personal information.

MyCERT or the Malaysian Computer Emergency Response Team operates a public service in the form of the Cyber999 Help Centre which provides emergency response to computer security issues in addition to support in management of incidents such as computer abuses, hack attempts and other security breaches

Table 1 MyCERT security breaches (2005–2010)

	2005	2006	2007	2008	2009	2010
Harassment	43	63	68	72	174	419
Fraud	149	287	364	907	1,022	2,212
Malicious code	82	68	182	277	283	1,199
Denial of service	7	6	8	12	28	66
Intrusion	467	897	385	766	1,766	2,160
Total	748	1,321	1,007	2,034	3,273	6,056

Source Data taken from MyCERT (2010)
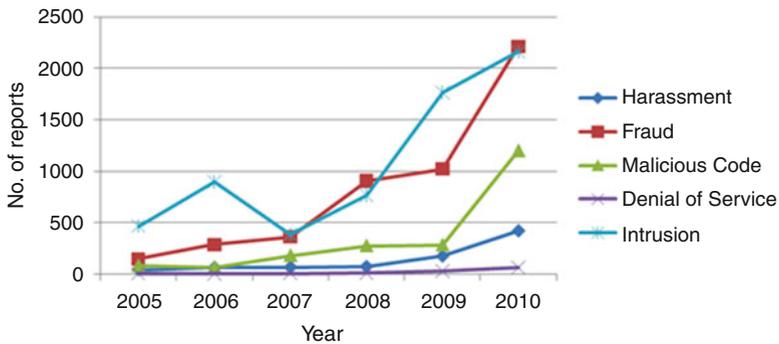
Fig. 1 Security breach trends for all categories

related to confidential information. The summary report of MyCert Security Breaches (2005–2010) relating to computer security incident handling and trends observed from the research network provides an overview of activities carried out by MyCERT (2010). Incidents categories supported by MyCERT (from 2005 to 2010) are shown in Table 1 and Fig. 1.

By and large, all categories show increasing trends in the number of reports every year. The majority of incidents recorded were due to fraud and intrusion representing 37 and 36 % respectively for the year 2010, followed by malicious code at 20 %, harassment at 7 % and denial of service at 1 %. Incidents related to system intrusion were generally caused by web defacement. The major reason for defacements was discovered by MyCERT to be related to vulnerable web applications. Phishing sites of local and foreign institutions comprised most of the fraud related incidents (MyCERT 2010). There is a variation of data availability by category as precise definitions of cyber security data categories that are currently used by the CERTs are difficult to find. Furthermore, many countries do not have national CERTs even though these institutions are often the main sources of such cyber security data. In addition, CERTs are relatively new in several countries and most do not provide much data. Exploring cyber international relations will be a challenge if inadequate data availability continues.

3 Internet Banking Security

Internet banking users are steadily increasing not only in Malaysia, but all over the world. Internet banking facilities which provide 24/7 services was convenience and gives an edge over other delivery channels such as phone banking, fax banking, and kiosk through dedicated lines to the bank. Overall, Malaysians were accepted Internet banking happily to solve their daily banking transactions in very minimum time. However, there are some issues with Internet banking which needs to be dealt with. Malaysians and banking customers were need to be concern and aware about the issues in Internet banking applications even though the issues are big in nature. According to Ooi (2002), the main issue is on trusting the Internet banking due to security reasons. Generally, this section will discuss about security policy guideline in Internet banking in Malaysia. Finally, the propose Internet banking security mechanism framework is suggest to enhance the security issues occurs.

Meanwhile, Tan and Teo (2000) determined that a very important factor in Internet banking adoption was risk. Ndubisi et al. (2004) on the other hand found that raising public confidence for system utilization involved the important aspect of security adequacy. Poon (2008) examined ten factors (convenience; accessibility; feature availability; bank management and image; security; privacy; design; content; speed; fees and charges) influencing e-banking adoption in Malaysia and found that security, privacy and convenience were significant contributors to e-banking acceptance. Even though the studies presented earlier found that e-banking offers new possibilities, a number of crucial psychological and behavioural factors have to be dealt with. These are trust, security, reluctance to change and human interaction preference factors.

4 Biometrics Technologies Implementation

A biometric is defined as "a measurable, physical characteristic or personal behavioral trait used to recognize the identity, or verify the claimed identity, of an enrollee" (Khosrow-Pour 2007, p. 53). Biometrics is a well-known technique to identify an individual or verify its identity (Mahier et al. 2009). Biometric technology provides a range of automated methods which can be used to measure and analyze a person's physiological and behavioral characteristics (Alhussain and Drew 2009). It usually involves a scanning device and related software which can be used to gather information that has been recorded in digital form.

According to Pranic et al. (2009), their research results showed that travelers perceived that some security measures such as sky marshals, fingerprints, eye scans, and face scans were both acceptable and effective at airport security. Therefore, making the distinction between biometrics' acceptance and perceived effectiveness, the implementation of biometric technologies at airports is an inducement for all stakeholders to understand this important issue from the technology point of

view and from the consumers' point of view (Pranic et al. 2009). Meanwhile, biometric technologies are perceived as acceptable and effective in the grand scheme of improving security in the overall flying process.

Several biometric traits have been proven useful for biometric recognition (Faundez-Zanuy 2009). Currently, the common used biometric systems include fingerprint, iris, face, and voice recognition. The world has entered the age of universal electronic connectivity so that people's daily life has a close relationship to various "e-things", such as e-commerce, e-library, e-government, and so forth. In such an e-world, more and more activities should be related to security services. With rapid progress in electronic and Internet commerce, there are now hand-held devices with the ability to be secure. Companies have also now offer a portable fingerprint reader for the Compaq, HP and Casio hand-held units where a customer can choose authentication with or without a smart card (Zhang 2002) (Fig. 2).

There are many industries that using biometrics implementation such as banking, immigration, national identity, telephone systems, time, attendance and monitoring and covert surveillance. Immigration authorities throughout the world are pressure by the issue such as terrorism, drug trafficking, illegal immigration, and an increasing throughput of legitimate travelers. It is essential that these authorities
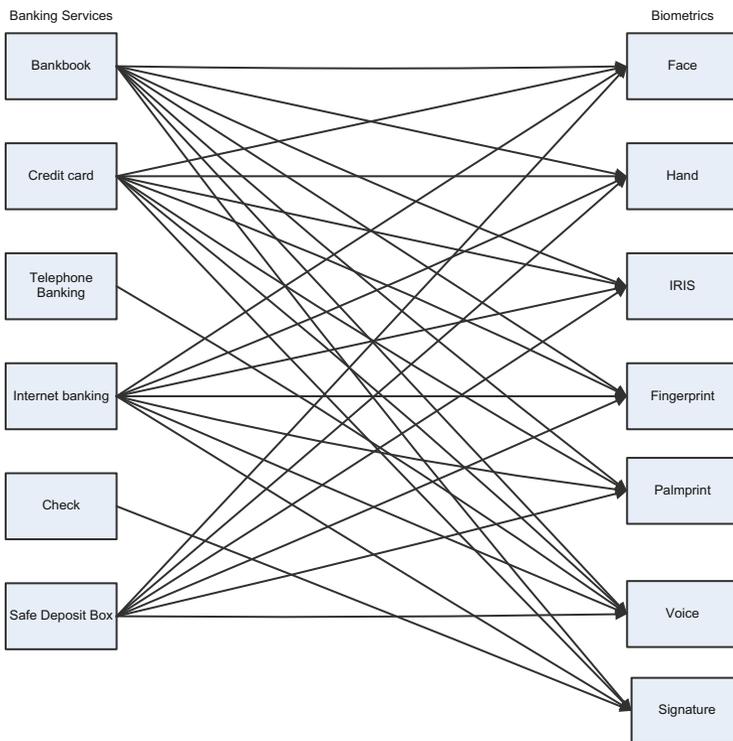

Fig. 2 Potential biometrics applications in banking

can quickly and automatically process law-abiding travelers and identify the law breakers. This is possible by being employed biometrics implementation.

Biometrics is beginning to assist governments as they record population growth, identify citizens, and prevent fraud occurring during local and national elections. Often this involves storing a biometrics template on a card that in turn acts as a national identity document. Finger scanning is particularly strong in this area. Biometrics technologies are not something new in Malaysia since the government sector has implemented in National Registration Department or (JPN), which represents the largest user of biometrics. Mykad as identity card keep biometrics data through embedded microchips. Besides, the immigration department has implemented the auto gate system installed at various entry points of the country and airport as authentication system by using thumb print scanner to match with passport embedded microchips, which keep biometric data. Financial institutions such as traditional banking also require thumb print scan to authenticate each risk transaction.

Communication has become accessible worldwide in the past 10 years with simultaneous advances in technology and reduction in communication costs. However, there has also been increasing vulnerability faced by telephone companies due to escalating fraud which have damaging effects on companies and their customers. Companies are now turning to biometrics technology to defend against such onslaught after the success of this technology in other security related issues. One such example is using 'Speaker ID' technology which is a technique based on voice recognition of people and is well suited for application in telephones and the communication industry. At present, certain factories and companies use punch cards to keep track of employee movement, whereby cards have holes punched into them when inserted into a machine as employees arrive and leave the company. Such a system can be abused and would therefore benefit from biometrics technology with the use of a system that requires employees to scan their fingerprints before arriving or leaving. The effectiveness of biometrics technology has given rise to evolving application and new challenging areas such as using biometrics for covert surveillance. With developments in facial and body recognition technologies, biometrics can even be used to automatically identify notorious suspects entering buildings or passing through crowded security sensitive areas such as airports. However, technical challenges such as concurrently identifying multiple subjects amongst hundreds of people and dealing with difficult subjects have to be resolved when using biometrics for covert identification as opposed to authentication. Biometrics devices used for this purpose will have to be able to recalibrate for inconsistent poses, viewing angles, or distances from the detectors.

According to Zhang (2002), biometrics applications are not limited to the areas already mentioned. In fact, the most common method to identify suspects and bringing criminals to justice by law enforcement community which are matching fingerprint images or parts of palm images.

Biometrics industry has been tremendously growing in developed countries like US and Japan. There are many gadgets being introduced in those countries to facilitate the current lifestyle. The cardless payment system should be replaced and there must be more easier, reliable, secure, cash free, and tension free payment system such biometric payment system in which no one has to carry a dozen cards for shopping, travelling, entering office, passing university entrances or bank door locks, entering Internet online shopping, and various kinds of card systems installed (Kumar and Ryu 2009). The research conducted in Sweden by Brobeck and Folkman (2005) showed that companies believe that biometrics is for organizations with a very high security need. Furthermore, the result showed that individuals are positive towards biometrics. Finger-scan is the technology most known of, trusted and preferred, for most likely, because it is a mature identification technique that has been around for a long time.

There has been increasing research done on biometrics such as the study by Al Harby et al. (2008) which found that the majority of Saudis prefer to use fingerprint identification methods and biometrics authentication systems using fingerprints are now practically and culturally accepted by Saudis (Al Harby et al. 2010b). Another research conducted by Al Harby et al. (2010a) involved using the technology acceptance model for prediction on acceptance of using biometric authentication systems in the online banking environment.

Past literature have shown the acceptance and biometric technologies implementation, and it has already been implemented in certain government departments, issues like it is something new and impossible to implement in other areas should not be brought up, and these technologies are growing to enhance the security level of authentication system.

5   Conclusions

In this paper, a proposed solution regarding the combination of biometric factors and traditional password technologies to increase levels of security in online applications such as Internet banking. Malaysia is moving towards becoming a developed country by the year 2020, it is believed that biometrics could be a key driver of growth for Malaysia. From the perspective of significance of biometric technologies, global needs, and national needs, which are in alignment, Malaysia can contribute and even lead the biometric technologies as to accomplish the mission. As the Malaysian government has always emphasized on security and privacy protection in financial, economic, political transactions, it is undeniable that biometrics technology could contribute in achieving this aim.

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Innovation Management and Innovation Potential of Croatian SMEs

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Abstract The purpose of the paper has been to determine to what extent Croatian SMEs gear to accept innovations in the processes, products or organization in general. The aim has been to highlight the importance of innovation management and absorption and diffusion of innovation by SMEs in fostering growth and development of the organization itself. In the first part of the paper a literature review is provided. The empirical research was conducted to determine a present state in Croatian SMEs regarding innovation, perception of innovations and innovation absorption and diffusion. The primary data, collected through questionnaire, was used to find responses on the factors influencing innovations in organizations. The second part of the paper reveals research results. The National strategy of innovation for the period 2014–2020 was used as a frame which determines ways of improvements in innovation capacity and innovation management in Croatian SMEs. It was used also as a base to make a comparison with older EU members.

Keywords Innovation potential • Innovation management • Small and medium enterprises • Croatia

1 Introduction

Small and medium-sized enterprises (SMEs) due to their flexibility and adaptability to the changing global environment are considered important boosters of employment (Castrogiovanni 1996) and contributors to higher economic growth rates. Overall, in 2012, SMEs accounted for 66.5 % of employment in the private, non-financial Sectors (European Commission 2013a).

The role of SMEs is crucial for the European economic recovery—their number, employment capacity and value added constitute a large share of the European economy, so providing the right conditions in which SMEs can flourish is paramount for ensuring a sustained recovery and achieving prosperity for all EU citizens (European Commission 2013a).

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Ordinary, they outnumber big corporations, but on the other side, SMEs form the base for future large companies and corporations—micro to macro system (Monk 2000). SMEs make up 99.8 % percent of EU firms and the overall contribution of SMEs to total EU-27 value added was more than 57 % (€3.4 trillion) in 2012 (European Commission 2013a). Another factor that makes them incrementally important for the national economy is their innovation capacity. Thus, it is up to the local, regional and national governments to create favorable conditions for innovation activities performed by the small and medium-sized enterprises.

Some claim that SMEs tend to be more innovative than bigger enterprises because of their flexibility and easier process of adaptation. SMEs also quickly adopt inventions that are created by their development activities (Verhees and Meulenberg 2004).

However, this is not always the case. Some think differently. The factors that are important during the implementation period in SMEs (Alloca and Kessler 2006) can be identified as obstacles in innovating activities: capital resources because SMEs have relatively limited sources so they have limited fund for research and development or for faster launch a new product. But, on the other hand SMEs move relatively quickly and are easily able to explore new technologies. SMEs are also fighting with lack of marketing and technical sources (lack of brand recognition, no award system). Among other factors (or obstacles), the ability to innovate can be highlighted. Innovations come from big companies and SMEs, but SMEs face more challenges due to limited human potential, culture of SMEs and management. The role of top management is important. SMEs face lack of manager experts but have easier model of managing. The process of development of new products is harder for SMSs. SMEs usually have less process, less resources and informal strategy of planning and communication. SMEs are more flexible and more motivated but have less experience and are very different from big companies in administrative aspect. When it comes to strategy and planning, SMEs have less formal strategic planning. Alliances are another very important issue for the process of innovation because if they are used well, they can help SMEs to overcome their weaknesses.

Scholars have made progress in the several last years regarding the dynamics of innovation and the explanation of differences in the process of creation, adoption and implementation of innovations. The relation between R&D and innovation is highlighted by economist, mostly for high tech SMEs and large firms (Le Bars et al. 1998). Relationship between size of enterprise and innovation has been explained better since the time of Schumpeter's seminal research (1912–1942). Still, empirical results remain inconclusive. Large firms produce more innovations beyond certain extend that this level declines.

So, the development of new products and services is very important for the growth and survival of SMEs. Although, SMEs need to innovate, on the other hand, they must minimize their costs due to facing lots of obstacles (Bakovic and Perić Ledić 2011). By using their strengths such flexibility, informal structures and good relations with the environment, SMEs challenge big companies.

Entrepreneurship is connected with innovation. Why is it like that? Because they have a lot in commune like: risk taking, uncertainty, recognition of market

opportunities, success reaching and endurance in facing challenges (Oksanen and Rilla 2009). Innovations are key factors for national competitiveness and enterprise competitiveness. Already Schumpeter proved that innovation is an essential driver of competitiveness (Porter and Stern 1999) and economic dynamics (Hanush and Pyka 2007).

This paper focuses on the research results regarding factors that influence innovations, innovation's impact on organization, type of innovation in Croatian SMEs and their implementation.

2 Literature Review

Innovation is about entrepreneurial solutions to global challenges (Auerswald and Quadric 2014). According to Schumpeter's theory innovation can be divided into five different categories (Schumpeter 1934): (1) launch of a new product or a new species of already known product; (2) application of new methods of production or sales of a product (not yet proven in a industry); (3) opening of a new market (the market for which a branch of the industry was not yet represented); (4) acquiring of new sources of supply of raw material or semi-finished goods; (5) new industry structure such as the creation of destruction of a monopoly position. Accordingly, innovativeness can be manifested as a new product, process or new business systems. The most important innovation aspects are: introducing something new for an existing company; process aspect of innovation and continuously innovating (Tomljenović 2007). Hence, it can be new for market or organization in general (Crespell and Hansen 2008). Bessant and Tidd (2013) developed the '4Ps' model built on the hypothesis that successful innovation is essentially about positive change and deepened the connection between innovation and entrepreneurship. They put forward four broad categories where changes can take place (Humanitarian Innovation Fund 2014b): (1) Product innovation—changes in the things (products/services) which an organization offers; (2) Process innovation—changes in the ways in which products and services are created or delivered; (3) Position innovation—changes in the context in which the products/services are framed and communicated and (4) Paradigm innovation—changes in the underlying mental models which shape what the organization does.

Innovation is the result of iterative learning processes as well as environments that encourage experimentation, critical inquiry, critical debate, and accept failures as a necessary part of the process. Failure is a necessary part of the innovation process because from failure comes learning, iteration, adaptation, and the building of new conceptual and physical models through an iterative learning process. Almost all innovations are the result of prior learning from failures. Innovation requires a mind-set that rejects the fear of failure and replaces that fear of failure with the joy of exploration and experimental learning (Hess 2012). Innovation can be a result of an independent work that springs from a flash of genius (Drucker 1998), but most of them are the result of purposeful search for innovation

opportunities. Drucker (1998) explained such opportunities that can be found within company or industry such as: unexpected occurrences, incongruities, process needs and industry and market changes; but he also mentioned three additional sources outside the company (Drucker 1998): demographic changes, changes in perception and new knowledge.

Aligned with the above, sources of an innovation for a company can also be: internal value chain activities; external value-added chain of suppliers, customers and complementary innovators; universities, government and private laboratories; competitors and related industries; and other nations or regions (Afuah 2003). Today is impossible that one company use only internal sources of innovation, company must listen and respond to changes in environment. Moreover, combination of both, external and internal sources is common for most of companies (Cassiman and Veugelers 2006).

Due to the increasing impact of the Internet, social interactions, and the growing acceptance of social software, organizations are reacting to these new models and technologies by actively soliciting feedback as a way to meet and manage the changing expectations of employees, customers, partners, and suppliers (International Data Corporation 2013). There are four key technologies that have converged to drive innovation: social networking, mobile computing, analytics and cloud computing. These technologies enable new ways to develop products, interact with customers, partner with others, compete, and succeed. Top-performing companies show greater mastery in how they leverage these four digital technologies to plan, innovate, measure results, interact with customers, and create value (Pricewaterhouse Coopers LLP 2012). SMEs have two possibilities regarding innovations: they can work alone throughout their function of research and development or they can manage human potential, encourage teamwork, look for external sources and cooperate (Rammer et al. 2009).

There are some obstacles to innovations which can be categorized into internal and external as follows: (1) internal: lack of financial resources, inappropriate human resources, weak corporation's financial position, high costs associated with high risks and (2) external: turbulent business environment, lack of external corporation opportunities, lack of information, lack of government support (Madrid-Guijarro et al. 2009). Very clear overview of innovation barriers (based on all relevant studies in the field that were deeply investigated) was provided in the paper of Tabas et al. (2011). Table 1 presents the innovation barriers: financial limitations of SMEs, lack of qualified personnel, organizational barriers, innovation infrastructure and insufficient government support.

Despite its complexity and unpredictability, a successful innovation process is usually seen as proactive rather than reactive, and can be said to include some or all of five key elements (Humanitarian Innovation Fund, 2014a): **recognition** of a specific problem, challenge, or opportunity to be seized, in relation to the provision of humanitarian aid; **invention** of a creative solution, or novel idea, which helps address a problem or see an opportunity; **development** of an innovation by creating practical, actionable plans and guidelines, **implementation** of an innovation to produce real examples of changed practice, testing the innovation to see how it

Table 1 Innovation barriers

Financial limitations of SMEs	Lack of qualified personnel	Organizational barriers	Innovation infrastructure	Insufficient government support
• High costs of innovation • Accessibility of external financial resources • High economic risk	• Finding and keeping qualified employees • Employee resistance to change • Management resistance to change • Training of employees	• Limited internal know-how of innovation • Management • Managing style • Bureaucratization of business entity • Corporate culture	• Technological parks and incubators • Knowledge sharing • External partners cooperation • Information about technologies • Marketing know-how	• Lack of supporting policies

Source Tabas et al. (2011, p. 450)
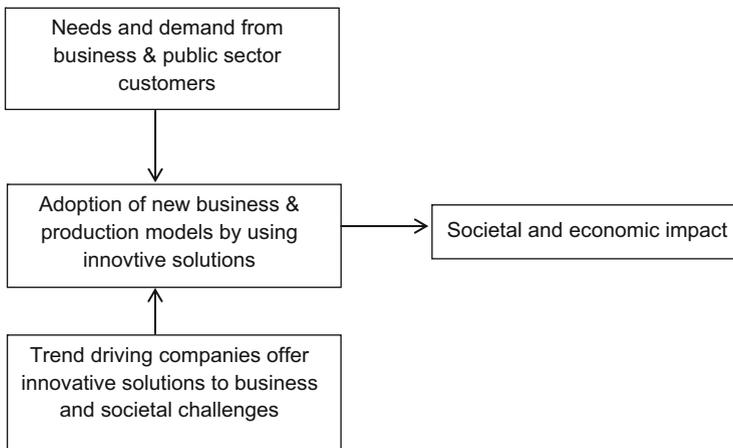
Fig. 1 New business model [*Source* European Union (2013, p. 3)]

compares to existing solutions and **diffusion** of successful innovations—taking them to scale and leading to wider adoption outside the original setting.

European Union sees the acceptance of innovation in processes, products and organization as the answer to the needs and demand from businesses, public sector and customers, further supported by changing trends that force companies to innovate and offer new solutions to existing business and social challenges. New business model presented in Fig. 1 poses social and economic impacts.

Nowadays, when all companies are involved in globalization process it seems more important to innovate due to changing customer demands, shortening product life cycle, increasing technological capabilities (Bakovic and Perić Ledić 2011). In the following section research results are presented.

3 Empirical Research

3.1 Overview of the Situation in the Republic of Croatia

In this paper the innovation potential of SMSs in Croatia is presented, so to become more familiar with the meaning of SMEs in Croatia. Table 2 shows the criteria for classification of small and medium enterprises in Croatia.

The criteria for classification of SMEs in Croatia are: total assets, the amount of revenue and average number of employees during the financial year.

In Croatia SMEs make 99 % of total enterprises (Centre for Policy Development of SMEs and Entrepreneurship 2013). From Fig. 2 it is possible to see Croatian stage of development compared with economies in transition from stage 2 to 3.

Croatia is in the process of transition from being efficiently driven to becoming more innovation driven. The capacity to innovate is very closely tight to encouraging/hindering factors of doing business since the will, strength and capacity to

Table 2 The criteria for the classification of SMEs in Croatia

Type of enterprise	Total assets	Income	Average number of employees
Small	32.5 million kn	65 million kn	50
Medium	130 million kn	260 million kn	250

Source Accounting Law of the Republic of Croatia (2007, p. 3)
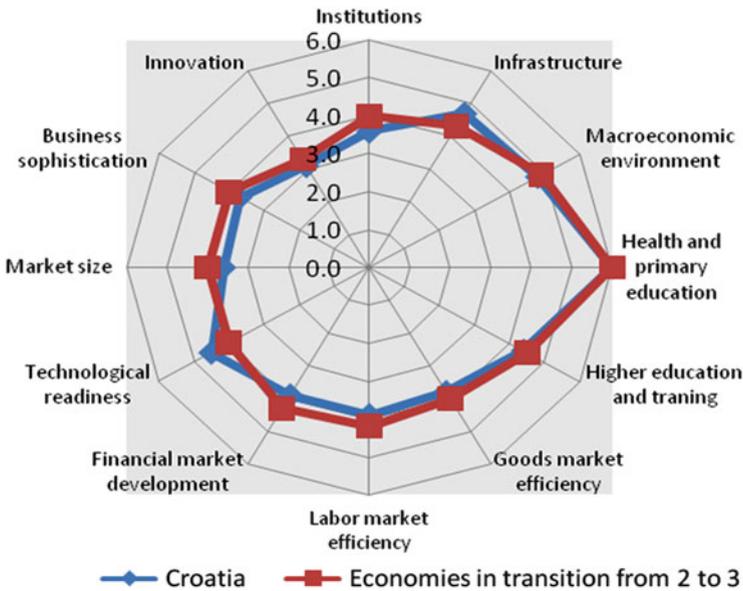
Fig. 2 Croatian stage of development [*Source*: Shwab and Sala-i-Martin (2012, p. 146)]

Table 3 Summarized innovation's pillar

12th pillar: innovation	(1–7)	Rank (out of 144 countries)
Capacity for innovation	3.1	72
Quality of scientific research institutions	4.1	48
Company spending on R&D	3.0	76
University-industry collaboration in R&D	3.5	80
Government procurement of advanced tech products	2.7	129
Availability of scientists and engineers	3.8	86
PCT patents, applications/million pop.	10	33

Source Shwab and Sala-i-Martin (2012, p. 147)

innovate is the result of the challenges occurring in the environment (local, national, regional, global). In Croatia, the local and national environment and happenings within these environments are to be seen as crucial in enabling the faster transition process to being more innovation driven economy. Within the same report Shwab and Sala-i-Martin (2012) point to the most problematic factors of doing business in Croatia. The top five most problematic factors are: inefficient government bureaucracy, corruption, access to financing, restrictive labor regulations and tax rates. **Insufficient capacity to innovate** is placed on the tenth place. Table 3 summarizes the innovation's pillar.

The Innovation Union Scoreboard 2014 places Member States into four different performance groups: Denmark (DK), Finland (FI), Germany (DE) and Sweden (SE) are "Innovation Leaders" with innovation performance well above that of the EU average; Austria (AT), Belgium (BE), Cyprus (CY), Estonia (EE), France (FR), Ireland (IE), Luxembourg (LU), Netherlands (NL), Slovenia (SI) and the United Kingdom (UK) are "Innovation followers" with innovation performance above or close to that of the EU average; the performance of Croatia (HR), Czech Republic (CZ), Greece (EL), Hungary (HU), Italy (IT), Lithuania (LT), Malta (MT), Poland (PL), Portugal (PT), Slovakia (SK) and Spain (ES) is below that of the EU average. These countries are "Moderate innovators" and Bulgaria (BG), Latvia (LV) and Romania (RO) are "Modest innovators" with innovation performance well below that of the EU average.

According to European Commission **Croatia** is a moderate innovator together with Czech Republic, Greece, Hungary, Italy, Lithuania, Malta, Poland, Portugal, Slovakia and Spain. Croatia had an initial decline in 2007 and then its innovation performance improved at about the same rate as that of the EU until 2011. Looking the innovation performance it started to decline in 2012 that resulted with the decrease in the performance relative to EU from 60 % in 2011 to 55 % in 2013. The reason can be found in decline of sales share of new innovative products. Despite the efforts of innovators and SMEs, Croatia stays well below the average of EU for most indicators (mostly for Community design, Community trademarks and NON-EU doctorate students). On the other side Croatia has a high growth for Non-R&D innovation expenditures, new doctorate graduates and International scientific co-publications. Moreover, large declines in growth are observed in

Community designs, PCT patent applications in societal challenges and in License and patent revenues from abroad (European Commission 2014).

3.2 Methodology

This paper relied on an on-line survey that was carried out among Croatian small and medium enterprises. The survey was carried in the period from December 2013 to May 2014. Majority of questions were closed, the five point Likert scale was used. The primary data, collected through questionnaire, was used to find responses on the factors influencing innovations in organizations, innovations impacts or organization performance, detecting the speed of diffusion, relatedness of innovation and the continuity of their use in SMSs.

The return rate was very low, only 17 %, regardless, authors tried to get a overview of a situation in Croatian SMEs and provide some results and recommendations.

3.3 Research Results

For determining the factors that influence innovation authors used an adjusted model of Vieites and Calvo (2011) who proposed a structural model for big companies, where different elements such contingent factors, human, organizational and financial resources, cooperation and information management are seen as factors affecting innovation activities that determine innovation results and thus affect firm's performance. Authors of this paper added two more factors: external sources and cooperation. Figure 3 illustrates influence factors evaluated by Croatian SMEs.

Croatian small and medium entrepreneurs think that the biggest influences have managerial characteristics, organizational and technological factors (4.3), as well education of human potential. These factors are followed by operating years, company size and environmental factors (4.1). The results show that it is upon managers to influence teams in the process of creation of innovation. This is highly interrelated with their educational background, their leadership skills and capabilities.

According to European Commission (2013b) just over one in four enterprises (25.5 %) were engaged in cooperation regarding their innovation activities, so this cooperation might be with other enterprises within the (enterprise's) group, suppliers, commercial laboratories, universities, or public research institutes. In Croatia, respondents ranked (3.5) cooperation with other enterprises and that is the lowest rank in the graph above.

In SWOT analysis of Croatian SMEs sector are mentioned some of these influence factors as weaknesses: lack of funding for R&D, insufficient managerial
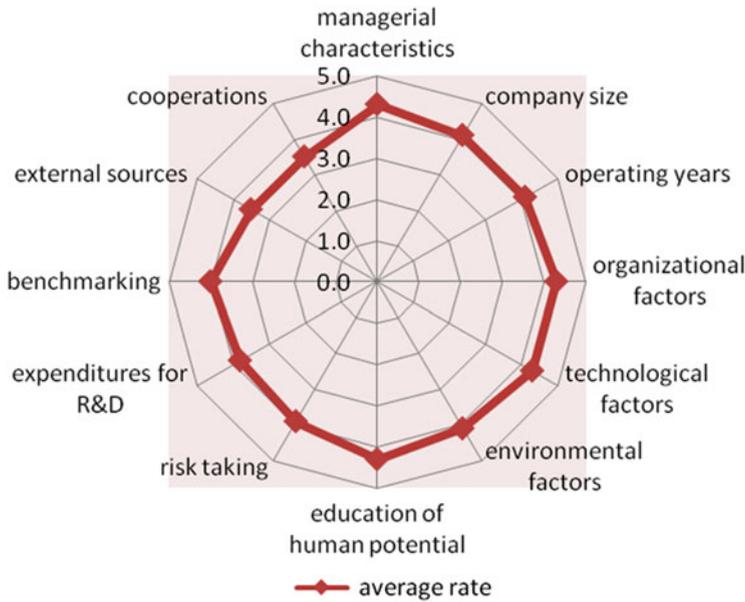
Fig. 3 Influence factors (*Source*: Authors' work)

skills, low level of technological transfer between universities and business and as a threats: insufficient innovation infrastructure, small share of population with the science, mathematics and technical degrees (Pozzi 2010). These problems must be resolved because Croatian SMEs to some of them give big significance (for example: managerial characteristics (4.3), education of human potential (4.1)).

Authors were keen to understand the impacts of innovations on firm's performance affected by the gained revenue, market share, efficiency, customer loyalty, productivity etc.

Figure 4 shows that Croatian small and medium entrepreneurs gave the highest average vote to *revenue, market share and efficiency* (4.2). Obviously, entrepreneurs recognized the importance of innovation in generating higher revenue supported by the achievement of higher market share and efficiency. Revenue productivity was also detected as an important factor, being strongly affected by accepted innovations in firms. One research showed that relationship between innovation and productivity are showing significant economic impact of product innovation on revenue productivity and a somewhat more ambiguous impact of process innovation (Hall 2011).

Figure 5 indicates that the process of adopting innovation in Croatia is fast for 75 % of SMEs while 25 % accept them slowly. Research shows that those enterprises who innovate are in advantage when they are compared with their competitors, they outperform measured in terms of market share, profitability, net income and enterprise growth (Tidd et al. 2005).
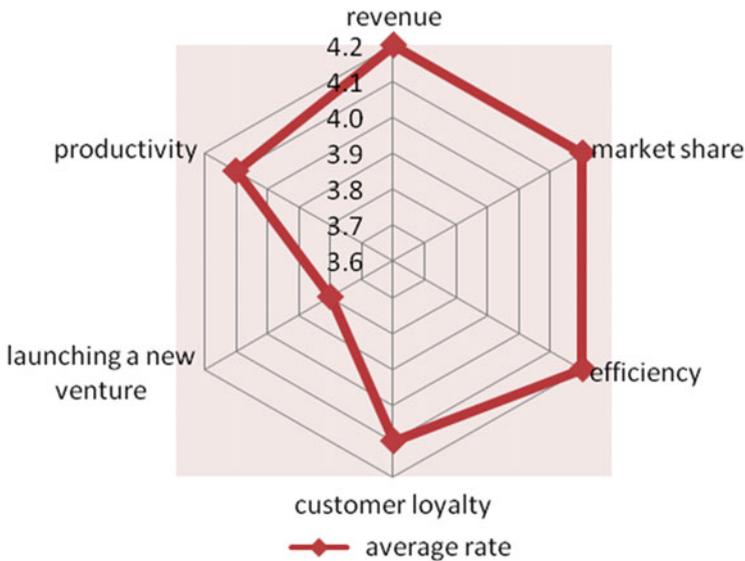
Fig. 4 Innovations' impacts on organization's performance (*Source*: Authors' work)
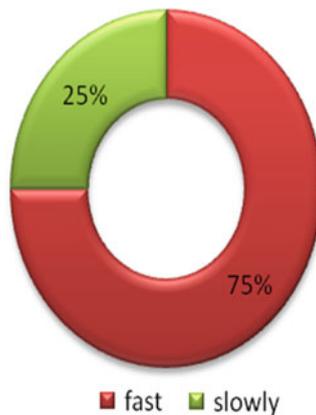
Fig. 5 Speed of diffusion (*Source*: Authors' work)

Innovation can happen in product, organization, management, production, commercial/marketing and services (Trott 2008). The different types of innovations and their uniqueness may lead to different impacts on strategy, structure, and performance of the organization (Damanpour et al. 1989). Furthermore, innovation capacity at the company level is related to new technologies regarding process, products/service and organization (Albaladejo and Romijin 2000). What about Croatia? Figure 6 shows types of innovation in Croatian SMEs.

Most of innovations are related to process (50 %), followed by products, including facilities (44 %) and organization (6 %). The possible answer to the

Fig. 6 Types of innovation in Croatian SMEs (*Source*: Authors' work)

Fig. 7 Continuation of the use of innovation in Croatian SMEs (*Source*: Authors' work)
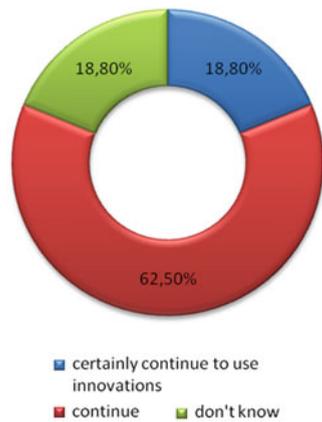
highest percentage of process innovation could be entrepreneurs' perception of a process including marketing function and the process of production. Process innovation controls and reduces process wastage, reduces processing time and associated costs thus contributing to increasing productivity and sustaining competitiveness. The product innovation increases the product life cycle and enables tapping new markets as well as increases sale ability.

In EU-27 around 24 % of enterprises engage in product and/or process innovation and 26 % of enterprises in organizational and/or marketing innovation (European Commission 2013b). So, Croatian SMEs don't follow that trend because as seen before, most of Croatian innovations are related to process or product.

The majority of SMEs (62.5 %) agree on innovation continuity, 18 % of SMEs admit they will most likely continue to use innovation, while others are not pretty sure on the same. From Fig. 7 it is possible to see the huge share of those who continue to use innovation so that can be considered as a positive aspect of Croatian SMEs.

Interestingly, half of Croatia SMEs see themselves as organizations that are constantly experimenting in search for new market opportunities while the others seek to maintain a stable line of products and services. As said before, constantly experimenting is a feature of innovative company. So only half of Croatian SMEs see themselves as innovative enterprises.

4   Discussion and Conclusion

Creation, adoption and diffusion of innovation is always seen as a challenging process due to the existence of many impeding factors most of which were listed above. In Croatia, based on its current stage of development many of the impeding factors have to be taken into consideration because they limit the SMSs potential to innovate and grow.

National innovation strategy of Republic of Croatia has set four strategic goals that could resolve problems of Croatian SMEs: increase innovation performance (innovation index), increase of share of investment in business sector in total investments of R&D (on 2/3), increase of applied research in science research sector which is intended for economy and increase of number of researchers in total number of employed in economy.

Four thematic pillars were also set: (1) Development of National innovation system and legal and fiscal frame for fostering innovation; (2) Fostering innovation potential of economy; (3) Fostering collaboration and flow between economy, public and science research sector; (4) Fostering human potential for innovation and preparing the environment for attracting *world class* researchers. There are five priorities regarding innovation SMEs in the second pillar: (1) Support to the growth and establishment of innovative SMEs; (2) Support to the business investments of SMEs in research, technological development and innovation; (3) Support to business investments of big entrepreneurs in research, technological development and innovation; (4) Facilitate access of innovative enterprises to financing and (5) Attract foreign direct investment in high technological sectors and emerging industries (Ministarstvo gospodarstva RH [Croatian Ministry of Economy] 2013).

Internally, Croatian SMSs can strengthen their capacity to innovate. They can even boost innovations by pursuing several methods that can potentially enable innovations grow more safely and sustainably. Workplace innovations can be encouraged by strong motivation policy. Within that, appropriate job design techniques should be in use as enlargement or enrichment techniques. Employees should be encouraged to propose ideas and by appropriate motivation policy and good techniques this can be further strengthen and highly accepted by most of employees. Reward system is another method authors would propose to internally spur innovations. The same can be applied to improvement of labor contracts.

Table 4 Enabling and impending factors

Enabling factors	Impeding factors
• Focus on strengthening managerial support in driving innovations • Focus on process and product innovation • Focus on continuous innovative efforts—persistence on innovation • New methods for stimulating creativity (brainstorming sessions, financial incentives for employees to develop new ideas, job rotation of staff, multidisciplinary or cross-functional work teams, non-financial incentives for employees, training employees on how to develop new ideas or creativity) (European Commission 2013b)	• Governmental support • Lack of R&D support • Unfavorable economic and institutional conditions

In Table 4 authors underline some of the enabling and impeding factors as detected from the research results.

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The Quality Characteristics of the Financial Information Between Requirement and Utility

Ana Morariu, Mihaela Daucianu (Avram), Grazia Oana Petroianu, and Ion Dulugeac

Abstract The objective of this article is to analyze the evolution of the quality criteria of financial information required nowadays by IFAC, the world's largest professional body for effective decisions taken by owners, managers, employees of the entity. Fundamental characteristics are given by relevance and faithful representation. The second category considers verifiability, opportunity, comparability and intelligibility of information. In Romania, by comparing the quality characteristics of the information provided by financial reporting required by the IASB conceptual framework and by national regulations, there is a substantive difference. The relevance of the financial information must express the predictive and confirmatory value so that investors and creditors decisions should be based on the weather in order to help users confirm or adjust previous forecasts. The predictive and confirmatory (feedback) are attributes relevance of financial information. Romania fragmented applies them by Order 3055/2009 [Order no. 3055/2009 for the Approval of the Accounting Regulations in conformity with the European Directives.], without focusing on the relevance and role of undisputed projections based on historical financial information. Given the current state of development of accounting normalization, the ideal is to create a single standard, unitary standard that does not allow exceptions, conditions, exceptions or options.

Keywords Accounting normalization • Fundamental qualitative characteristics • Border of significance • Users of financial statements

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1 Introduction

Information and decisions cannot exist outside knowledge. The sustainable development strategy at the level of the European Union provides a general framework for the emergence from the economic crisis; it addresses the social economic development model from the perspective of a new vision founded on the smart growth based on the knowledge and innovation economy, a sustainable growth, based on a competitive economy. Decisions made by decision makers in the economic and financial environment are important. Ensuring that decision makers have high quality information with all the attributes of this particular quality and they do not hide risks that are capable of hiding undesirable outcomes up to the bankruptcy, remains a notable goal.

As a result of the changes in economic, political, social and cultural domains, accounting is in constant evolution. Legislative changes testify today, in our country, the mandatory transition to the application of IFRS to companies traded on the regulated market that is supervised by the Bucharest Stock Exchange. We support their application because of the advantages these standards of quality offer with regard to the information quality that is worldwide recognized, of the balance sheet taxation methods that lead to temporary differences and not just towards current taxes for governments, of the accounting treatments for each element of the structure of the financial situation (Morariu and Daucianu (Avram) 2013).

The motivation to introduce the IFRS is that of the annual financial statements transparency, of uniform presentation of the information for both its shareholders and potential investors. Introducing IFRS also provides the management the possibility of making the best decisions for future periods, while the IASB general conceptual framework requires relevance and faithful representation as being the basic quality characteristics in Fig. 1.

The relevance of information displays two values: one predictive of prevision, of budgeting of the investments, cash flows, incomes and expenses, etc. and another value of confirmation of previsions. In other words, the quality of current information is extremely important as it represents the basis for future decisions of investment, disinvestment, the attention and the strategy of the entity on the construction of the global outcome, of the present and future cash flows (CECCAR 2013a).

A quarter of a century ago, accountants were using different languages and were offering different interpretations of the same events and transactions; today, for most accounting specialists from all countries, the watchword is internationalization.
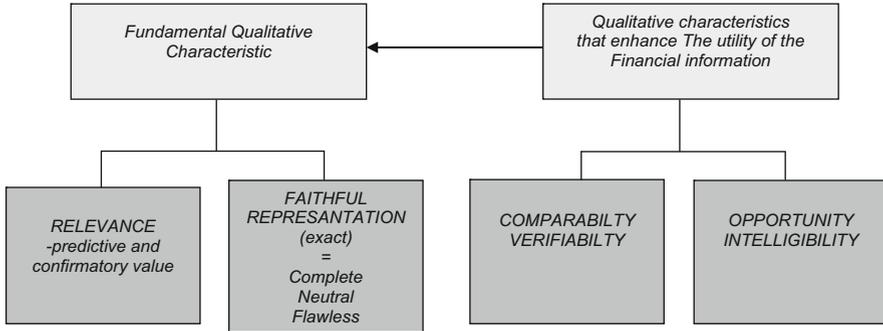
Fig. 1 Quality characteristic of the financial information [*Source* Morariu (2008)]

2 Research Methodology

The objective of this article is to analyze the evolution of the quality criteria of the financial information required nowadays by IFAC, the largest professional body in the world, for effective decisions made by owners, managers, employees of the entity. The significance of the figures in the financial statements, understandable through explanatory notes should represent the economic substance of the phenomena and events that took place at a particular time. The requirement is imposed by the quality characteristics of the information to be useful to the governance/management for the future decisions of the entity: the financial position, performance, net cash flows, earnings per share, etc.

The quality of the financial information is becoming a major focus nowadays, for any entity or group, because they represent the foundation which future prognostication rely on in the viability of any entity. A basic research methodology was used to achieve the proposed objective. For the demarcation of the concept of qualitative characteristics of the information provided by the financial reporting, they have resorted to mechanisms of inductive and deductive research and to the comparative analysis of some of the national accounting standards, both European and international. The comparative analysis regarding the qualitative characteristics of the information has been provided by the financial reporting according to the conceptual frameworks of accounting.

2.1 The Qualitative Characteristics of the Information Provided by the Financial Reporting According to the Conceptual Accounting Framework IASB

Inspired by the U.S. framework, but addressing to a wide range, the international conceptual framework (also called the Framework for the Preparation and

Presentation of the Financial Statements) covers the concepts and principles that make up the reference framework for the presentation of the financial statements for external users. This conceptual framework has been attributed the referential quality for the development of the accounting standards and of coherence instrument of the accounting norms and practices.

IASC (International Accounting Standards Committee) was established in 1973 by the agreement between professional organizations in Australia, Canada, France, Germany, Japan, Mexico, Netherlands, UK and Ireland, respectively the U.S.A. Later other members as donors joined it and in 1993 an agreement was concluded between the IASC and IOSCO (The International Organization of Securities Commissions), through which a group of 30 standards was identified that could be used for the quoting on international capital markets. On the 1st of April, 2001, the IASB took over from the IASC the responsibility of issuing global accounting standards, of high quality, which were to ensure the transparency and comparability of the financial statements. Since 2002, the issued International Standards called IFRS (International Financial Reporting Standards). The conceptual framework adopted in 2001 by the International Accounting Standards Board (IASB) is pro-investor oriented.

In September 2010, the General Conceptual Framework for Financial Reporting issued by the IASB has as objective of financial reporting with the general purpose of providing financial information that will be useful to the existing and potential investors, lenders and other creditors in the decisions they take on with regard to the providing of resources to the reporting entity. The IFRS try to meet the needs of the investors, based on financial and accounting information. "The conceptual accounting framework of IASB is subject to the review in the collaboration with the FASB and the normative accounting research undertaken in the review process seeks to measure the potential and actual consequences of the accounting standard on investor's behavior" (Balasoiu 2012, p. 31).

IASB has completed the first stage of the process of updating of its conceptual framework in 2010, which stipulated the substitution of two of the chapters of the general Framework for the Preparation and Presentation of Financial Statements in 1989, one of them being chapter Workplace Bullying in Malaysia: Incidence, Consequences and Role of Organisational Support—Qualitative characteristics of useful financial information.

The general Conceptual Framework for Financial Reporting issued by the IASB in September, 2010, does not follow strict and persuasive rules, but on features and concepts that underpin this process. Along with the overall objective of the financial statements, the conceptual framework also presents the quality features.

2.1.1 Fundamental Qualitative Characteristics that Financial Information Must Meet to be Useful to the Maker

Financial information must have predictive value (to be definite, indisputable) to obtain forecasts of future results. Financial information must have value

confirmation, especially in assessments/previous forecasts, which can confirm or deny. Financial information must be significant, since the omission of information can influence a user's decision. Financial information must fully describe economic phenomena for the user to fully understand the described phenomenon. Financial information must describe neutral the economic phenomenon for tracking possible influences on the decision.

To be useful and assist users in making good decisions, the implementation of quality characteristics should include: the identification of an economic phenomenon that has the potential to be useful to users of financial information of the reporting entity, identifying the type of information on that phenomenon which would be the most relevant and determining if the information is available and can be exactly represented.

2.1.2 At the Basic Characteristics, for the Information to be Useful Must be Known, Respected Also the Qualitative Amplifiers Characteristics

Comparability, financial information helps the user to understand the similarities and differences between them. Comparability does not refer to a single element but requires at least two elements, and may be in time and space.

Consistency is a means of achieving comparability and refers to using the same methods for determining the financial information either from one period to another, or by two or more reporting entities. Comparability is the goal, consistency helps to achieve that goal. Direct verifiability of financial information requires direct observation of a value or representation, while the indirect financial information verifiability is considering checking formulas or other techniques. Opportunity does not relate only to information of reporting period but also to old information because it may be used to make predictions. Understandability of financial information exists if they are classified, characterized and presented clearly and concisely. Information on the complex inherent phenomena should not be excluded from the financial reports for they are easily understood.

Transparency, high quality, internal consistency, true and fair view or fair presentation and credibility are not included qualitative characteristics, but are suggested as necessary qualitative characteristics for financial information. These criteria are not qualitative characteristics, but they are part of the overall process of assessing the benefits and costs of providing useful financial information (Ristea et al. 2006).

Table 1 Qualitative characteristics of the information in the financial statements

According to the provisions of IFRS for SMEs adopted by IASB in July, 2009	According to the provisions of the general Framework of IASB the preparation and presentation of the financial statements on the 1st of January, 2005	Conclusions

1. Intelligibility
2. Relevance
  – Border of significance
3. Reliability
  – The prevalence of the economic over juridical
  – Neutrality
  – Prudence
  – Completeness
4. Comparability
	1. Intelligibility
	2. Relevance
	  – Border of significance
	3. Credibility
	  – Accurate representation
	  – The prevalence of the economic over juridical
	  – Neutrality
	  – Prudence
	  – Completeness
	4. Comparability
		The characteristics 1, 2 and 4 are similar.
		Credibility was replaced by reliability in IFRS for SMEs and by the exact representation in the general conceptual Framework for the financial reports issued by IASB in September, 2010

Source Balasoiu (2012)

2.2 Qualitative Characteristics of the Information Provided by the Financial Reports According to IFRS for SMEs

In Table 1, The International Financial Reporting Standard for SMEs adopted by the IASB in July 2009 presents the same components of the quality characteristics of the financial information presented in the conceptual accounting Framework of the IASB prior to the amendments in 2010.

2.3 The Quality Characteristics of the Information Provided by the Financial Reports According to the Conceptual Accounting Framework in the USA

The American accounting normalization framework entitled the Financial Accounting Standards Board—FASB, was the first normalization entity which created a conceptual framework. This project started even from the creation of FASB in 1973, but the conceptual statement was published in 1978. In addition to the financial reporting's objectives, the qualitative characteristics necessary to an accounting information are set for it to be useful.

The main idea that emerges from the American conceptual framework is that the information provided by the financial statements should be useful. To be useful, a financial statement should feature two main qualities: relevance and credibility (or reliability).

The relevance of the financial statements is given, by the following basic characteristics (Walton 2006):

– The predictive value: increase the user's ability to make predictions.
– The retrospective value: the information has the capacity of confirming or correcting a previous prevision.
– Opportunity: the availability of the information when needed.

Credibility should meet, in its turn, the following basic characteristics (Walton 2006):

– Verifiability: is synonymous to objectivity and presupposes the accurate presentation of the information to be found in reality.
– Neutrality: presupposes that the information should not be conceived in a manner in which it may lead to a particular predetermined outcome or behavior.
– Accurate representation: the fidelity of the representation, also labeled validity.

Under FASB, even if not explicitly stated, prudence in the financial statements is required, because of the uncertainty of the economic environment.

Secondary characteristics of the financial information under U.S. conceptual framework are comparability and consistency. Comparability means that the information allows the achievement of comparisons between different companies. Consistency of the information allows comparisons in time within the same company.

The significance of the information is considered to be an appreciation criterion and may influence the decisions of the users (Ristea et al. 2006). The relation between the users of the financial-accounting information and the qualitative characteristics of this information are presented in Fig. 2.

2.4 The Quality Characteristics of the Information Provided by the Financial Reports According to the Conceptual Accounting Framework in the UK

Defining the first conceptual framework was achieved along with the Accounting Standards Board—ASB in 1990 and labeled as "Statement of principles". Under this framework, the financial statements prepared by the British companies have usefulness as main objective. Nevertheless, utility assumes that the financial information is the significant one. The significance border represents the basic quality.

The main characteristics of the financial information are relevance and reliability. Relevance helps users to assess past, present and future events. Relevance confirms or corrects previous assessments. Credibility is given by the information without error, which helps users to rely on the information in the financial statements (CECCAR 2013b).

According to the British conceptual framework, the usefulness of the information is questioned by the absence of comparability. The information implies comparisons over time within the same enterprise and space, between different businesses. For the information to be comparable, a condition to be met is the
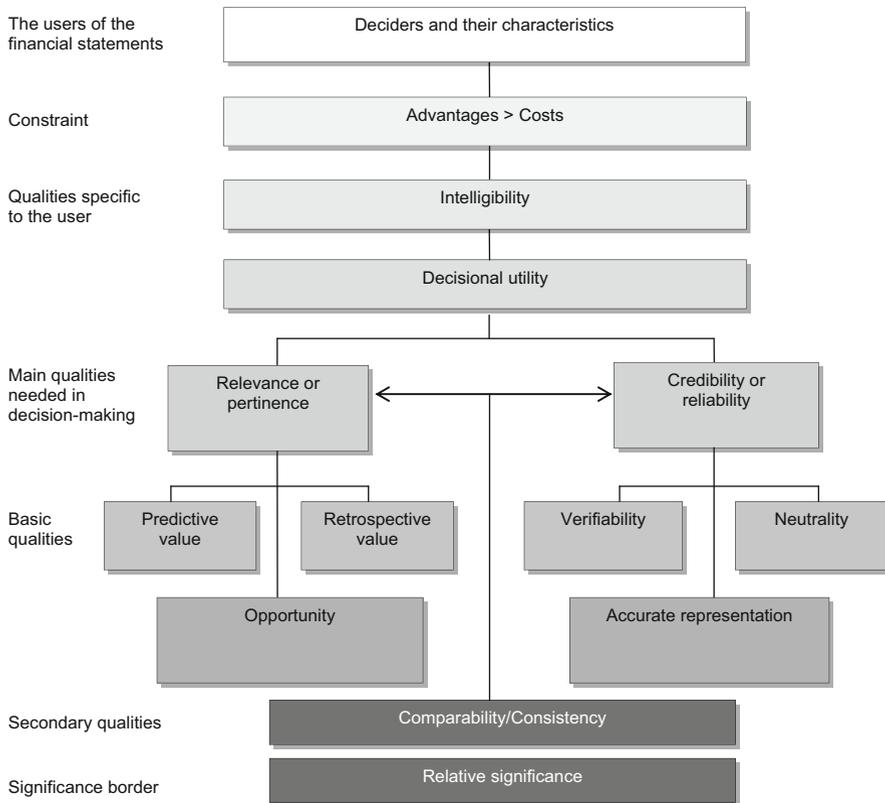
Fig. 2 The relation between the users of the financial-accounting information and the qualitative characteristics of these information (*Source* www.fasb.org/st/index)

continuity of methods by using the same evaluation methods from one financial exercise to another. Intelligibility and adequate presentation imply that the information must be published for users and should be understood by users, in order to make decisions about the reporting enterprise. Also, the presented information should accurately reflect the transaction or event which it proposed to represent (Ristea 2005).

Accounting Standards Board—ASB, also presents the limits of the qualitative characteristics, represented by the compromise between qualities, opportunity and the cost—profit report. The qualitative characteristics issued by the British standards are represented in the following scheme of hierarchy are presented in Fig. 3.
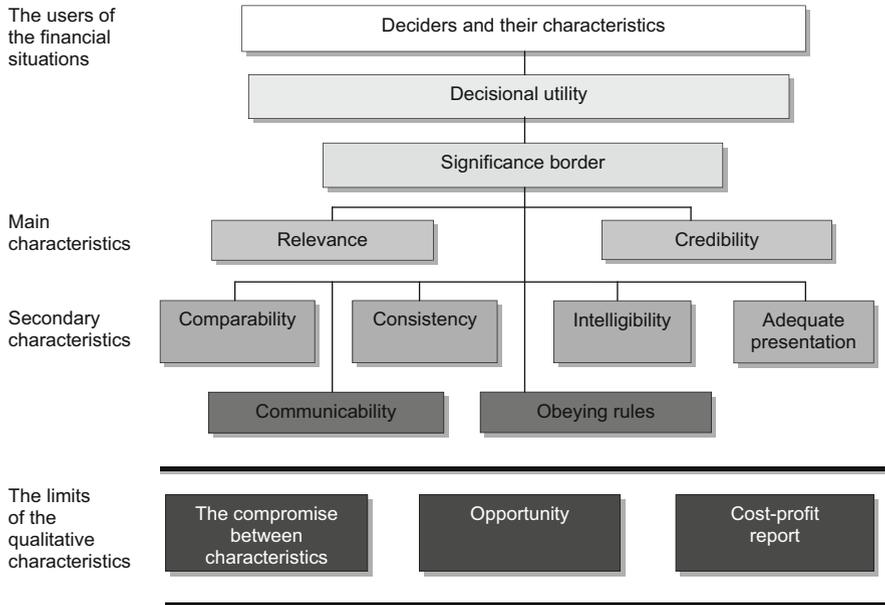
Fig. 3 The scheme of hierarchy of the quality characteristics of the financial information

2.5 Qualitative Characteristics of the Information Provided by the Financial Statements According to the European Directives

The most important directives governing accounting in the European Union are the Fourth Directive regarding the accounts, the Seventh Directive, to which the Modernization Directive, issued in 2003, was added. The European accounting directives are not based on a conceptual accounting framework which will establish the objectives of the financial statements, define the qualitative characteristics of the financial information, identify users and the information needs and ensure the consistency of the norms. This leads to differences between the financial statements of the European Union member countries. These differences are due to the fact that they do not have a uniform accounting doctrine, but two current accounts:

(a) The Anglo-Saxon approach—which attaches importance to the information provided to the shareholders.
(b) The continental approach—based on the precautionary principle, which favors the protection of creditors and of the IRS (Neag 2000).
(c) Compared with the accounting standards issued by the IASB, targeting the large groups listed on the stock, the European accounting directives have a much larger target audience, being applicable to small and medium enterprises.

"The proposal for the directive of the European Parliament and of the Council of the European Union no. 2011/0308 regarding the annual financial statements, the consolidated financial statements and the related reports of certain types of entities, has among its objectives the increasing of the efficiency, clarity and the comparability of the financial reporting and the protection of the needs of users" (Balasoiu 2012, p. 34). In order to stronger harmonize the accounting norms in the European Union, the proposal for the directive provides the elimination or reduction of the number of options available to the Member States of the EU in many aspects: evaluation, interpretation and reporting. Harmonization has convergence as its outcome.

In the proposal for the directive no. 2011/0308, two binding principles are introduced among changes in the framework of the general principles of financial reporting, as follows:

– The significance border turned into mandatory requirement for recognition, assessment, measurement, and presentation of the items in the financial statements;
– The prevalence of substance over form turned into mandatory requirement to present the economic reality of a transaction in the financial statements and not just its legal form.

The general principles of financial reporting, which the information in the financial statements must comply with, concern the disclosure of transactions and the elements of the financial statements.

2.6   The Qualitative Characteristics of the Information Provided by the Financial Reporting According to the National Accounting Rules

In Romania, after 1989, the transition from a centralized economy to a market economy, the reforms that marked the Romanian environment, led to a reform of the accounting system. This shift has led to the replacement of the accounting system at that time, which aimed at providing the necessary information for the planning and controlling of the national economy, with another aiming at providing information for both internal users and external ones of the financial information. Thus, a new accounting law was born, Law 82/1991. In 1991, the policy choice made by the Government, through the Ministry of Finance, led to the choice of the French accounting model which founded on certain considerations more or less subjective, including: the political and cultural ties between Romania and France, old in the ancient of times; the ties of the Communist regime in France, more than any country in the Western Europe; the presentation of the French system, by the French experts as a simple, easy to adjust and compatible with European directives one (Dima 2009).

Among the technical difficulties encountered by the reform in 1991, in the specialized literature, a number of drawbacks are reported, including the fact that there are not clearly stipulated the qualitative characteristics that the financial accounting information must satisfy.

Since 1999, OMF no. 403 has been issued on Accounting Regulations harmonized with the Fourth Directive of the European Economic Community and with the International Accounting Standards, which involves the opening to the Anglo-Saxon concepts and practices and the shift towards the international reference. These rules were applied to the financial statements of 1999 on a representative sample of the companies listed on the Stock Exchange and companies of national interest.

The accounting regulations harmonized with the Fourth Directive of the European Economic Community and with the International Accounting Standards are structured as follows:

– the Ist Volume, which covers general framework of harmonization of the accounting regulations with the Fourth Directive of the European Economic Community and with the International Accounting Standards, applied for the period of 2000–2005;
– the IInd Volume comprising the general Framework for the preparation and presentation of the financial statements prepared by the International Accounting Standards Committee.

The general framework for the harmonization of the accounting regulations with the IVth Directive of the European Economic Community does not clearly show the qualitative characteristics the financial and accounting information must meet, but a number of accounting rules and principles are found: the principle of continuity, of consistency of methods, the principle prudence, the principle of exercise independence, the principle of separate assessment of the separation of assets and liabilities, the principle of inviolability, the netting principle, the principle of prevalence of substance over form, the principle of the significance border (Feleaga and Ionascu 1998).

In 2001, the Order of the Minister of Public Finance No. 94 was issued on the Accounting regulations harmonized with the Fourth Directive of the European Economic Community and with the International Accounting Standards which repealed the provisions of the Order 403/1999.[1] The provisions of this Order were applied to a limited number of companies: companies listed on the Bucharest Stock Exchange, some autonomous administrations, national companies, other entities of national interest, as well as specific categories of companies operating in the capital market. In developing this order, Romania received expert assistance from the British experts from the Institute of Chartered Accountants in Scotland

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[1] Order no. 403/1999 for the Approval of the Accounting Regulations harmonized with the Fourth Directive of the European Economic Community and with the International Accounting Standards. Official Monitor no. 480 on the 4th of October, 1999.

(ICAS), and hence the opening of the order towards the International Accounting Standards. The order preserves, to a large extent, the structure of the provisions of European Directive IV. This order paves the way for an efficient accounting system, the users of the financial statements and the financial statement quality characteristics were mentioned in a similar range to that presented in the conceptual framework of the IASB. The users of the financial statements include present and potential investors, employees, creditors, suppliers and other trade creditors, customers, the Government and its institutions, the public. They use financial statements in order to satisfy some of their different needs for information. The quality characteristics are the attributes that determine the usefulness of the information provided by the financial statements. "The four main qualitative characteristics are understandability, relevance, reliability and comparability."[2] (Order no. 94/2001, p. 24).

The Order 94/2001 also describes the limits concerning the relevant and reliable information, which refers to the timeliness of the information provided and to the cost-benefit report. The establishing of a balance between the quality characteristics is often necessary in practice, the application of the main characteristics and of appropriate accounting standards results in the preparation of the financial statements which reflect a true and fair view of the company. In 2005, Order no.1752/2005[3] for the approval of the accounting regulations compliant with the European Directives, amended and prior supplemented, repeal the previous accounting regulations issued by Order no.94/2001. Although the new regulations were stated, the annual financial statements to be drawn up by business people, differentiated by their size criteria (ensuring full compliance with the European directives), these regulations were not considered explicitly the aspects of the accounting referential developed by the IASB and did not include the presentation of the users of the financial statements.

In 2009, the emergence of the Order no. 3055/2009 for the approval of the accounting regulations compliant with the European directives introduced new provisions relating to the general preparation framework and to the presentation of annual financial statements, presenting the users of the financial statements and the qualitative characteristics of the financial statements. The qualitative characteristics are the conditions that determine the usefulness of the information provided by the financial statements. The main quality characteristics are intelligibility, relevance, reliability and comparability.

A prerequisite for the information to be comparable is that the users to be informed about the policies used in preparing the financial statements, about any changes to these policies and the effects of such changes. The conditions that must

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[2] Order no. 94/2001 for the Approval of the Accounting Regulations harmonized with the Fourth Directive of the European Economic Community and with the International Accounting Standards. The Official Monitor no. 85 on the 20th of February, 2001.

[3] Order no. 1752/2005 for the Approval of the Accounting Regulations in conformity with the European Directives.

be met in order for the information to be relevant and credible are: the appropriateness of the information for decision-making by users; the benefits from the information should overcome its costs; the existence of a balance between the qualitative characteristics of the financial information.

3 Result

Comparing the qualitative characteristics required by IASB, both in the international regulations and in the U.S., two types of characteristics are found: fundamental and the ones which enhance the usefulness of the financial information. The fundamental characteristics are given by relevance and faithful representation. The second category considers verifiability, opportunity, comparability and the intelligibility of information.

In Romania, comparing the quality characteristics of the information provided by financial reporting required by the IASB general conceptual Framework and the ones required by the national regulations, substantive differences are noted. The relevance of the financial information must express the predictive and confirmatory value so that the decisions of the investors and creditors should be based on previsions in order to help users to confirm or adjust previous previsions. The predictive and confirmatory (feedback) value are the attributes of the relevance of the financial information. Romania applies them in a fragmented manner through OMPF 3055/2009, without focusing on relevance and the undisputed role of the projections based on the historical financial information.

If we apply the assessments of Italian economist Messier on the credibility of information, it should take account of the following: existence, information must reflect actual transactions and existing facts; completeness, the frame provided by information inside or outside entity must be complete; accuracy, the information should not be simple surface data, it is necessary to provide relevant and detailed study elements; classification, information must clearly meet classification parameters on optimization beneficiary benefits and minimize search time; "on time", the information will be calculated not only by its intrinsic fairness, but also by the time needed to obtain; imputation, the conclusions evaluation must be correct; assessment, the information must be the result of a proper assessment, in accordance with generally accepted laws and rules; allocation of rights and obligations related to operations management; description and presentation, the use and availability of information results depending on how they are represented.

The need for full transparency of information which became available element in economic competition, goes by only through the effectiveness of corporate governance and especially the internal control system. A proper regulation in accounting is required as necessary condition, but not sufficient to achieve information transparency. Required information must be part of a process of integrated communication, not only for the purposes of the rules, but must also be consistent

with systems of governance, with the position to the reference external environment, and the strategic guidelines of the fund.

Considering all the above, the financial information get to facilitate activities by removing any disturbances and contribute to the achievement of stable development. For the most part, managers use in decision-making information provided by management accounting. Effective decision-making is conditioned by the quality of financial information generated by the two accounting circuits, internal information circuitry or external circuit. The Production "science of accounts" occupies an important part in both the enterprise information environment and the information market.

In conclusion, the financial information is an essential component of economic information system, oriented to the knowledge and management of heritage separate economic values. Accounting and its summary statements represent the most important source of information for both company managers and external users, the two categories are required to know its achieved work and the results.

Financial information provide necessary safety required in decision making and predicting the evolution of economic activity, their use in decision-making information system enhancing in present by automating calculations in management. Nowadays, in many cases financial information has a major flaw—the lack of transparency. Being vital to the decision making, financial information should be continuously improved to become more flexible, relevant and understandable, paying attention and also to its quantitative nature.

4   Conclusions

Analyzing the accounting reference through the lens of the objectives of the financial information it is found that both the IASB general conceptual Framework and the American and British ones have as the objective of the financial reports, with general purpose, the useful information. Unlike the IASB general conceptual framework, the European Accounting Directives have as objective of the reported information the transactions and items of the financial statements.

In order to harmonize the accounting norms both IASB and the European Directives, said the need to reduce the number of alternative of accounting treatments permitted by IFRSs, respectively the number of the accounting options available to the Member States has been declared. Given the current state of the development of the accounting normalization, the ideal is to create a single, unitary standard that does not allow exceptions, conditions, exemptions or options. For the reported information to reflect reality unitarily, it is useful to be understood uniformly, this being achieved by the knowledge and understanding of the economic phenomena, transactions, items and events.

Currently, in Romania the accountants meet difficulties in practice, in the restatement process of the IFRS and towards those provided by OMPF 3055/ 2009. For proper implementation of tax laws, it should be identified and

implemented the accounting and tax treatment as IFRS operates either with assessments to fair value or with revalued value or cost inflation, depreciations, estimations of the value of assets, debts, provisions.

Even if the application of IFRS in the first phase of implementation generates only problems regarding the choosing of the optimal solution, in this case, since there were not clarified all the tax implications, we should not ignore the advantages of their application. IFRS requires the professional accountants a new language and improved knowledge depending on the development of the profession in the world.

The access to the international markets can reduce costs and conduct the international transactions easier, because by applying the IFRS the foreign partners have greater confidence in the "Financial Statements" when partnerships are closed or additional capital is attracted. At the same time the application of the IFRS allows reporting to other similar companies worldwide and allows comparability to the performance of companies globally. "Globally, the strongest financial markets appreciate the international accounting standards as an embodiment of effective competition, knowing that the need of the preparation of additional accounts, in order to enter a foreign market, is actually a brake." (Feleaga 1999, p. 16).

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Instilling Malaysian Consumers' Mind-Set in Accepting GST: An Analysis on the Effectiveness of Communication used by the Government

Rohizan Ahmad, Rahilah Ahmad, and Sueraya Mohamad Alwie

Abstract Goods and Services Tax (GST) is a consumption tax based on goods and services to be imposed at every production and distribution stage in the supply chain, aims to replace the existing sales and service tax. It is part of the Malaysian government tax reform programme to improve the country's tax administration and management. It is to be implemented effective April 1, 2015 as mentioned in the Malaysia 2014 budget. As the timeframe for the implementation draws closer, previous research showed that consumers in general still have vague ideas about GST and its implication to the economy. Majority of the consumers were not ready to accept GST and some perceived that the government's effort in promoting it is inadequate. Therefore, this research was conducted to analyze the effectiveness of communication used by the Government in instilling Malaysian consumers' mind-set to accept GST, and also to evaluate the effectiveness of communication tools used. The findings indicated that further efforts should be taken by the government to widen the communication channel so that the information on GST will be easily accessible and understood by every consumer in Malaysia, thus it will enhance the acceptance and implementation process of GST.

Keywords GST • Mind-set • Effectiveness • Perceived • Communication • Consumers

1 Introduction

Goods and Service Tax (GST) which is also known as VAT or the value added tax in some countries is a multi-stage consumption tax on goods and services (Royal Malaysian Customs Department 2014). It is levied on the supply of goods and services at each stage of the supply chain from the supplier up to the retail stage of the distribution. GST is imposed at each level of the supply chain however the tax element does not become part of the cost of the product because GST paid on the

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business inputs is claimable. Hence, it does not matter how many stages where a particular good and service goes through the supply chain because the input tax incurred at the previous stage is always deducted by the businesses at the next step in the supply chain.

GST is a broad based consumption tax covering all sectors of the economy comprising all goods and services made in Malaysia including imports except specific goods and services which are categorized under zero rated supply and exempt supply orders as determined by the Minister of Finance and published in the Gazette.

The concept behind GST was invented by a French tax official in the 1950s. In the 1960s and 1970s, the GST or VAT was not widely used, as countries still relied to a large extent on direct taxes such as corporate and personal income taxes to generate revenue to fund government expenditures. However, the tax rates escalated ever since as early as 1970s. The top marginal income tax rates in the United Kingdom, New Zealand, South Korea and Taiwan were 75, 50, 70 and 60 % (Pheng and Loi 1994, as cited in Nor Hafizah and Azlin 2013).

As international trade and investment flows increased and talents became more mobile across borders, countries with high direct taxes suffered an outward migration of talented people to lower tax countries. In addition, high income taxes reduced an individual's willingness to work, save and invest. High corporate taxes discouraged initiative and drove businesses elsewhere. *Ad hoc* indirect taxes which were consequently imposed heavily and unequally on different parts of the economy have stifled economic activities. Wholesale and turnover taxes caused cascading due to the fact that by the time the product reached the consumer, the effective tax on the product has undergone many times the nominal rate.

All these resulted in a worldwide trend towards lower direct taxes and a more even distribution of the tax burden between direct income and broad-based indirect taxes on consumption such as the GST. This form of VAT has since surfaced in almost all recent tax reform exercises held, including in Japan (1989), Pakistan (1990) and Finland (1991).

The countries based on regions that have implemented GST are listed in Table 1, and according to the Royal Malaysian Customs Department (2013), as of to date a total of 160 countries in the world have implemented VAT/GST (Table 2).

Malaysia, Brunei and Myanmar are the only ASEAN countries that have not implemented the GST as of today. Whilst countries working towards a VAT/GST system are Afghanistan, Bahamas, Bhutan, Kiribati, Marshall Islands, Micronesia, Palau, Sao Tome and Principe, Syria, Gulf Cooperation Council (Bahrain, Kuwait, Qatar, Saudi Arabia, Oman and the United Arab Emirates), however China and India are to have a uniformed GST system.

In Malaysia, the tax system involves several different indirect taxes such as import duty, export duty, Government Sales Tax, Service Tax and Excise Duty tax. Hence, the government has taken the imitative to proceed with GST so as to replace the Government Sales Tax and the Service Tax. It was initially scheduled to be implemented during the third quarter of 2011, however this was delayed since the government is still reviewing the impact of the tax on the consumers in general and

Table 1 List of countries that have implemented VAT/GST

No	Region	No. of country
1	ASEAN	7
2	Asia	19
3	Europe	53
4	Oceania	7
5	Africa	44
6	South America	11
7	Caribbean, Central & North America	19

Source Royal Malaysian Customs Department (2013)

Table 2 List of ASEAN countries that have implemented VAT/GST

No	Country	GDP per capita (World Bank, 2011, USD)	Year of implementation	Initial rate (%)	Current rate (%)
1	Indonesia	3,495	1984	10	10
2	Thailand	4,972	1992	7	7
3	Singapore	46,241	1993	3	7
4	Philippines	2,370	1998	10	12
5	Cambodia	897	1999	10	10
6	Vietnam	1,407	1999	10	10
7	Laos	1,320	2009	10	10

Source Royal Malaysian Customs Department (2013)

the amount of criticism and negative perception received from the Malaysian consumers. Nevertheless, during the government reading of the 2014 budget, Malaysia Prime Minister Najib Razak announced that a GST tax of 6 % starting April 1, 2015 will be implemented to replace the Sales and Service tax which have been generally used in the country for several decades. The purpose is to reduce the country dependence on revenue from Petronas, Malaysia's state-owned oil company and seeking additional revenue to offset its budget deficit.

GST is important in order to eliminate its inherent weaknesses such as cascading and compounding effects, transfer pricing and value shifting. It also discourages vertical integration, administrative bureaucratic red tape, more effective, efficient, transparent and business friendly. Indirectly GST is expected to spur economic growth as well as increase Malaysia competitiveness in the global market.

2 Literature Review

Various studies have been conducted to accommodate the recent announcement made by the Malaysian government to implement the GST and to ensure the effectiveness of the system. The studies also include consumer readiness in accepting the GST and its impact on income earners especially the middle income category. In the light of Malaysian perspectives, the introduction of GST are deem

ambiguous and vague. Thus, various compilation and analysis of past researches of other countries such as Australia, United Kingdom, Singapore, Indonesia and Canada are taken into consideration to complement this paper.

Palil et al. (2013) had indicated in their study that Malaysian government shall expose, promote as well as educate the nation aggressively. However, no clear approaches have been highlighted on how to exercise this. The research also highlighted that respondents generally received less information and promotions from the relevant authorities. In addition, the previous research conducted by Palil and Ibrahim (2011), emphasized that clear message should be made through media to avoid misconception on the impact of GST in the price level of goods and services.

Moreover, a study by Valadkhani (2005) had explained the effects of GST on goods and services included in the Consumer Purchase Index (CPI) basket in Australia using the Box and Tiao intervention analysis. Results had shown that food, alcohol and tobacco, clothing and footwear, housing, household furnishings, supplies and services, communication and recreation had one-off GST effect on the price indices compared to health, transportation, education and miscellaneous have no statistical significant effect on the price indices in which suggested that prices thus did not increase significantly according to different CPI groups. Therefore, this information should be studied, shared and delivered to the consumer in Malaysian perspectives in order to avoid the misconception that by the introduction of GST, all goods and services price will increase significantly, thus will burden them in the long run.

GST was first introduced in Singapore on 1 April 1994 at 3 %. GST rate was increased to 4 % in 2003 and subsequently to 5 % in 2004. As announced in the Budget 2007, GST rate was raised further to 7 % on 1 July 2007 (BDO 2014). While this may just be another tax for many businesses, the rules and regulations governing the mechanism of this tax were entirely different from what companies and individuals have so far experienced from corporate and personal income tax respectively. The input tax is deductible from output tax to arrive at the GST payable by the trader, or amount to be refunded to him. A non-registered business cannot therefore collect GST from its customers and is not entitled to claim credit for GST paid to its taxable suppliers in respect of its purchases.

In Indonesia, VAT and GST are applied to most goods and services. Imports are subject to VAT and GST, but most exports are not. VAT and GST taxes are called "*Pertambahan Pajak Nilai*" or PPN. PPN is a 10 %, point-of-sale tax that extends to services supplied by foreign taxpayers outside Indonesia that allow certain items to be taxed as high as 20 % with a cap of 35 %. However, for luxury goods, additional sales tax is levied in addition to PPN, and the rates range from 10 to 50 %, with few items taxed as high as 75 % (Anglo Info 2014).

In order to meet the objectives of this study, we also analyzed the communication currently used by the government to reach the Malaysian Consumers about GST. Throughout the study, we found several communication tools such as billboards, internet, public service announcement, and official websites of the government's agencies have been used by the government in conveying the message to

consumers, however most of the information conveyed only basic information illustrated by caricature.

It is seen that most information provided was inadequate and lack of elaboration about what is GST, thus consumers have been skeptical, unprepared and unwilling to accept it. This was emphasized by Dr. Jariah Masud, President of Malaysian Consumer, Family and Economic Association (MACFEA) (Royal Malaysian Customs Department 2014). These concerns of consumers can only be overcome by providing accurate, clear and detailed briefings. With sufficient information, she believed that the people will agree that it is timely for the nation to implement GST. In general, the information provided currently is inadequate to instill the mindset of consumers to accept the implementation of GST.

The introduction of GST in Malaysia has also called for many arguments from various parties including academicians, professionals and the nation. The issue is focused primarily on how GST will affect prices of the goods. In general, the perception of GST among Malaysian showed that it is more of a burden to the consumers as GST will lead to higher prices of goods and services (Borneo Post 2012). According to the Nation's section in The Star newspaper dated October 21, 2013, HSS Advisory Sdn Bhd CEO Datuk Harjit Singh Sidhu indicated there are still fears among Malaysian on the impact of GST as there was no clear explanation from the Government. The Government should consider introducing the GST at 4 % because the public was still unfamiliar with the tax.

Further to this, Malaysian Trade Union Congress (MTUC) president Mohd Khalid Atan urged the Government to put off implementing the GST yet in view that if GST is implemented, the consumers will have to bear the consumption tax and this will definitely affect the poor. In view of the above perceptions, it is important to understand the perception of public on the implementation of GST from the perspective of developed and developing nations.

To further illustrate this point, it is best to look at examples in the countries that have adopted GST such as Canada, New Zealand and Singapore. According to The School of Public Policy, University of Calgary, SPP Research Papers (2012), when Canada implemented GST in 1991, most Canadians thought that it was a new tax, in part of the previous federal sales tax that had been invisible to the public. GST was seen for the most part as simply another tax grab that would produce large new revenues for the federal government. Thus this lead to the key reasons why the GST proved to be so unpopular among Canadians, its gestation period was long and its birth in 1991 was politically painful. However, finally it has been successfully implemented and accepted as part of the Canadian tax system.

New Zealand on the other hand, introduced GST in 1986. It was imposed in New Zealand at a single rate of 10 % and the introduction and subsequent operation on GST has been a major success from the government point of view. This is because the tax was well accepted by both business and general public due to the fact that legislation establishing the tax has generally done a well thought process during the development and implementation process of the tax. Apart from the government, public justification, consultants and educationists were also involved

in the process for a period over 2 years thus; only require minimal amendments since implementation (Muir 1993).

The impact of GST in Singapore also cannot be denied. Despite of the initial customer negative perception, GST has contributed in raising Singapore's level of competitiveness, increase inflow of foreign direct investments and provides employment opportunities thus resulted in lower unemployment rate and improved standards of living (Pheng and Loi 1994). Since GST is already well received and implemented in more than 140 countries, therefore it should be accepted by Malaysian in view that the system is expected to benefits and improve the overall economy of the country.

3 Problem Statements

Effective from April 1, 2015 GST is expected to be implemented to replace the existing sales and service tax. As the deadline set for implementation is drawing closer, overall consumers are still having vague ideas in comprehending GST and how it may help to reduce the burden on consumers. Previous research found that majority of the respondents were not ready to accept GST and 80.9 % of the respondents perceived that government had inadequately promoted GST. Prof Dr. Jariah Masud, President of Malaysian Consumer, Family and Economic Association (MACFEA) commented that the Government needs to convey the right information to the consumers on GST before it is implemented (Royal Malaysian Customs Department 2014). Concerns of the consumers can be overcome by providing accurate, clear and detailed briefings. The availability of adequate information will equip consumers with clear information on GST, thus the implementation will be more effective for the nation. In view of the above fact, this paper analyses the effectiveness of communication used by the Government in instilling Malaysian consumers' mind-set to accept GST.

The main objective of this research is to evaluate the communication tools used by government in delivering the GST message. It is also aim to identify the effectiveness of message delivered by the communication tools and identify the Malaysian consumer's acceptance level on GST.

Several hypotheses have been developed in this research to examine the various relationships between the variables. The research predicts that there is a positive acceptance level among consumer on GST with regards to an ideal communication tools. Thus, the hypothesis is formulated as below;

H1: There is a positive acceptance level of consumer on GST with regards to an ideal communication tools.
H2: There are differences in the level of acceptance of consumer on GST with respect to their income level
H3: There is a positive acceptance of consumer on GST with respect to the amount of information being disclose publicly.

4 Sample and Data Collection

The study was carried out on the Malaysian consumers in the Klang valley. A total of 300 questionnaires were distributed using random sampling method to gather the primary data. Based on Raosoft Software, a total of 271 surveys should be obtained to cater a total of 7,200,000 populations of Klang Valley with 5 % margin error and 90 % confidence interval. However only 214 or 71.33 % questionnaires were completed and reliable responses were gathered. SPSS was used to analyze the data that include a *t*-Test, ANOVA and Pearson correlation. This is further used to identify the mean differences between consumer's acceptance on GST with regard to their income level and gender, and to determine the relationship of acceptance on GST and communication tools, information, economics, and perceptions.

The primary data for this research was collected through a survey questionnaire whilst the questionnaire adopted from Palil and Ibrahim (2011). The questionnaire comprised of seven sections requesting different kinds of responses from the respondents: Section A required respondents to provide basic demographic information; Section B required respondents to highlight their level of understanding on GST; Section C required respondents to provide their opinion on the effectiveness of communication tools used by government to channels the information on GST; Section D highlighted the GST information been delivered; Section E requesting their perception on GST; Section F displayed the economic aspects pertaining GST; and lastly, Section G requesting the respondents on their acceptance towards GST. The scale used in the questionnaire ranged from 1 to 5 (Strongly Disagree = 1, Disagree = 2, Neither Agree/Disagree = 3, Agree = 4, Strongly Agree = 5).

The theoretical framework for this study is adapted from Shannon and Weaver Model of Communication. According to this model, communication is a process of establishing a commonness or oneness of thought between a sender and a receiver. This model is specially designed to develop the effective communication between sender and receiver. Also they find factors which affecting the communication process called "Noise". At first the model was developed to improve the technical communication. Later it is widely applied in the field of communication.

The model deals with various concepts like Information source, transmitter, noise, channel, message, receiver, channel, information destination, encode and decode. The theory lay down the foundation on explaining the effectiveness of GST, with regards to the communication tools being used as well as consumers' perceptions towards their acceptance and compliance. The key variables from the study are: communication tools, information and perceptions. In this study, Acceptance on GST is the dependent variable while the independent variables are communication tools, information, perceptions, demographic and economic (Fig. 1).

Another theory related to this study is media richness theory (Daft and Lengel 1988). It describes organizational communication channels as possessing a set of objective characteristics that determine each channel capacity to carry rich information. Rich information is said to be more capable than lean information in

SHAHNON-WEAVER'S MODEL OF COMMUNICATION
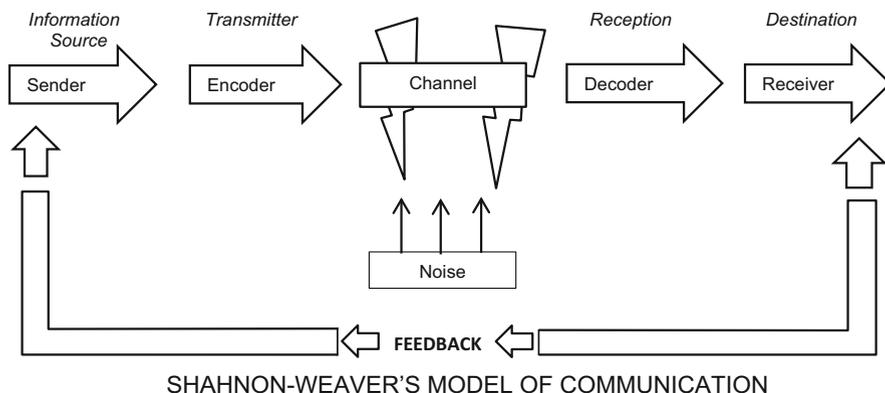
Fig. 1 Communication model (*Source* http://communicationtheory.org/shannon-and-weaver-model-of-communication/)

reducing equivocality in a message receiver. All communication channels for instance, telephone, conventional mail and email possess attributes that lead to distinct and objective richness capacities known as media. Media richness then refers to channels' relative abilities to convey messages that communicate rich information. On this basis, channels can be arrayed along a continuum describing their relative richness, which has been labeled the "media richness continuum".

Based on this theory, messages should be communicated on channels with sufficient and appropriate media richness capacities. Messages communication on channels that are inappropriate to the equivocality of a situation and the richness of the information sought to be transmitted may be misinterpreted by recipients or may be otherwise ineffective with regards to their intended purposes. From a strategic management perspective, the media richness theory suggests that effective managers make rational choices matching a particular communication medium to a specific task or objective and to the degree of richness required by that task (Richard L. Daft and Robert H. Lengel). From the perspective of this study, the government should make rational choices matching a particular communication medium to a specific task or objective to bring effective communication. Currently, the information and the channel used to convey the information on GST are rather limited. Besides, the information delivered through the chosen channels should also try to instil the mind set of Malaysian consumers to accept GST. As cited by Carlson and Zmud (1999), channel expansion theory identifies certain experiences as important in shaping how an individual develops richness perception for a given channel. However these perceptions are conceptualised quite differently than in poor literature. Hence, with rich information it should able to shape the consumers' positive perception towards GST. Eventually the acceptance should occur among the public.

In conclusion, these theories lay down the foundation on explaining the effectiveness of GST, with regards to the communication tools being used as well as consumers' perceptions and acceptance. The key variables from the study are:

Fig. 2 Theoretical framework
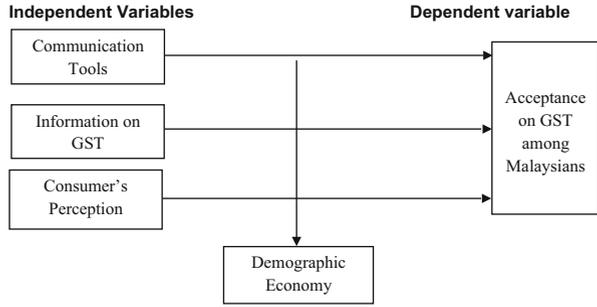
communication tools, information and perceptions which are considered as independent variables, while acceptance on GST is the dependent variable as shown in Fig. 2.

5   Data Analysis and Findings

Referring to Tables 3, 4, 5, 6, and 7 the data collected showed the background information of the respondents. The respondents were 80 males and 134 females in which accounted for 37.4 and 62.6 % respectively. 28 % of the respondents were from aged group 18–23 years, followed by 24–29 years old (19.2 %), 30–35 years old (17.8 %), 36–41 years old (10.7 %), 48–53 years old (9.8 %) and the remaining (5.1%) were above 53 years old.

The distribution of respondents according to their occupation varies between public sector (32 respondents—15 %), private sector (94 respondents—43.9 %), business owner (19 respondents—8.9 %), students (63 respondents—29.4 %), and others (6 respondents—2.8 %).

On monthly income, around 22.4 % of respondents earned more than RM5000, majority of the respondents of 32.3 % earned between RM2501–RM5000, followed by 18.7 % of respondents earned between RM1001–RM2500 whilst 9.8 % of respondents earned between RM501–RM1000 and 5.6 % of respondents earned between RM 200–RM500. Finally about 11.2 % respondents earned less than RM200.

Further analysis was also made on the number of respondents' number of dependents. The survey had encountered that 47.7 % of the respondents have no dependents, whilst 39.3 % of the respondents have less than 4 dependents, 12.1 % of the respondents have 5–8 dependents, and 9 % of the respondents have more than 9 dependents.

By comparing the various communication tools that have been used by the government to date such as television, newspaper, radio and internet, the survey has found that most respondents were neutral in their opinion in terms of the effectiveness of communication tools. Based on the result, 28 % found that

Table 3 Age distribution

Age	Frequency	Percentage
18–23 years	60	28.0
24–29 years	41	19.2
30–35 years	38	17.8
36–41 years	23	10.7
42–47 years	20	9.3
48–53 years	21	9.8
Above 53 years	11	5.1

Table 4 Gender distribution

Gender	Frequency	Percentage
Male	80	37.4
Female	134	62.6

Table 5 Occupational distribution

Occupation	Frequency	Percentage
Public sector	32	15.0
Private sector	94	43.9
Own a business	19	8.9
Students	63	29.4
Others	6	2.8

Table 6 Income distribution

Age	Frequency	Percentage
<RM200	24	11.2
RM200–RM500	12	5.6
RM501–RM1000	21	9.8
RM1001–RM2500	40	18.7
RM2501–RM5000	69	32.2
>RM5000	48	22.4

Table 7 Number of dependents

Age	Frequency	Percentage
None	102	47.7
<4	84	39.3
5–8	25	12.1
>9	2	9.0

Television is the most effective medium in delivering the message, followed by 28 % from Internet and 13.1 % from newspaper. Most of the respondents (68.7 %) indicated that they have seen the information about GST, while 31.3 % indicated as nil. The result further depicted that about 38.4 % out of 99 respondents have seen the information on GST in the Television, and 19.19 % saw it in the newspaper, 13.13 % saw from the internet, whilst the respondents saw the information in the social media (8.08 %), 3.03 % of respondents obtained the information through

training and 2.02 % obtained by listening to the radio. From the result, it is construed that further efforts should be carried out to widen the communication channel to reach the Malaysian consumers effectively. Lack of information being channeled through radio should be handled via corporate social responsibility of each radio station.

On the context of the quality of information, which is measured by its clarity, transparency and reliability, most of the respondents were indifferent in agree and disagreeing. Where 37.4 % has neither agreed nor disagreed with the information that provided are clear, 45.3 % for information with transparency and 42.1 % respondents neither agreed nor disagreed on the reliability of the information. However, 36.4 % of the respondents agreed that the usage of the symbols, graphics, pictures and animation are crucial to capture their attention towards understandings of GST. In addition, respondents agreed (41.1 %) that higher institutions should play vital role in providing the information of GST to public, especially university students. Thus, initiative should be taken by the government in order to produce an attractive means to relay the message of GST to Malaysian consumers, by taking into consideration on the clarity, transparency and reliability of the information itself.

Furthermore, on the issue of perception, it is recorded that 36.4 % of the respondents agreed that GST is not effective as all goods and services will be taxed, thus will lead to increase in prices. It showed that most of respondents still unclear on accurate measurement of GST, thus this is perceived as a burden to consumers. Similarly, 35.5 % of the respondents agreed that GST is not effective as they perceived it as a further burden on low income group. Interestingly, 35.5 % of the respondents believed that GST is a fair tax, as they agreed that only those people who buy goods and services only will be charged.

Besides, in relations to the acceptance factor, 40.7 % respondents agreed that the attractiveness and innovative elements or approach on promoting the GST will influence them to accept its implementation. Therefore, it should be one of the indicators that the government had to study so that the execution of the system will be successful with less interference. However, 34.1 % of the respondents agreed that they will be reluctant to accept the implementation of GST due to lacking of information being provided by the related authorities. It is shown that the acceptance of GST on the Malaysian consumers is subjected to the level of information provided. Thus, by filling the gap between these factors might be the solution to cater the continuous objection of specific group of consumers.

A reliability test was performed to ensure the consistency of the items used in measuring the variables. Result of Cronbach's alpha for all 39 items from the survey was 0.734, which indicate that findings were highly reliable.

The Pearson correlation result showed that communication tools and acceptance were significantly weakly correlated, $r = 0.243$, $p < 0.01$, information and acceptance found to be correlated with $r = 0.382$, $p < 0.01$, perception and acceptance signified relatively moderate correlation with $r = 0.449$, $p < 0.01$, and economic and acceptance had shown likely result with $r = 0.308$, $p < 0.01$. Thus, the results indicated that all variables namely, communication tools, information, economics,

Table 8 Pearson correlation statistics

Variables	r	Sig at α = 0.01
Communication tools	0.243	0.000
Information	0.382	0.000
Perception	0.449	0.000
Economic	0.308	0.000

Table 9 One way analysis of variance (ANOVA) among respondents' income group and acceptance

	Sum of square	df	Mean square	F	Sig α = 0.05
Between group	74.995	5	14.999	1.434	0.213
Within groups	2175.042	208	10.457		
Total	2250.037	213			

and perception have significant relationship with acceptance, in which indicating that Malaysian consumer are willing to accept the implementation of GST as attributes to the level of communication, information, economics, and perception factors. Among all variables, perception had shown relatively highest association with acceptance, which suggests that consumers' perception will strongly determine the acceptance toward GST. The details of the results can be seen in Table 8 as below;

Table 9 below depicts the results of Analysis of Variance (ANOVA) between groups of consumer's income with acceptance. Based on the result, the main effect of consumer's income was not significant, $F(5,208) = 1.434$, p = n.s. It revealed that consumer's income that range from less than RM200, RM200–RM500, RM501–RM1000, RM1001–RM2500, RM2501–RM5000 and income more than RM5000 did not differ on the acceptance toward GST. It further suggests that neither the consumers with higher income group nor with lowest income group, has no significant difference in their acceptance towards GST. Thus, income does not play significant role in influencing Malaysian consumers in accepting GST generally.

A *t*-test was conducted in order to determine the mean differences between gender and communication tools, information, perception, economics, and understandings, and acceptance. Tables 10 and 11 revealed that there is no significant gender differences on all variables being tested; Communication (Male: M = 18.5250, SD = 4.98599), (Female: M = 18.2687, SD = 4.70508), Information (Male: M = 15.2625, SD = 3.85741), (Female: M = 15.3284, SD = 3.44402), Perception (Male: M = 17.0000, SD = 3.92332), (Female: M = 16.6642, SD = 5.83346), Economics (Male: M = 18.9750, SD = 3.24905), (Female: M = 19.1418, SD = 3.37428), Understandings (Male: M = 9.6250, SD = 3.90512), (Female: M = 9.8060, SD = 3.90773), Acceptance (Male: M = 17.4250, SD = 3.39312), (Female: M = 17.2090, SD = 3.17195). The results indicated that male as well as female consumers' in Malaysia is having indifferent opinions upon these variables. This is consistent with research done by Palil and Ibrahim (2011) whose

Table 10 Independent *t*-test between Gender and Communication tools, information, perceptions, economics, acceptance and understandings

Variables	t	df	Mean difference	Standard error	Sig α = 0.05
Communication	0.352	212	0.25635	0.67984	0.707
Information	−0.129	212	−0.06586	0.50915	0.897
Perception	0.457	212	0.33582	0.73531	0.648
Economic	−0.355	212	−0.16679	0.47023	0.723
Acceptance	0.470	212	0.21604	0.46006	0.639
Understandings	−0.328	212	−0.18097	0.55198	0.743

Table 11 The mean, standard deviation and standard error between gender and communication tools, information, perceptions, economics, acceptance and understandings

Variables	Gender	Mean	Standard deviation	Standard error
Communication	Male	18.5250	4.98599	0.55745
	Female	18.2687	4.70508	0.40646
Information	Male	15.2625	3.85741	0.43127
	Female	15.3284	3.44402	0.29752
Perception	Male	17.0000	3.92332	0.43864
	Female	16.6642	5.83346	0.50393
Economic	Male	18.9750	3.24905	0.36325
	Female	19.1418	3.37428	0.29149
Acceptance	Male	17.4250	3.39312	0.37936
	Female	17.2090	3.17195	0.27401
Understandings	Male	9.6250	3.90512	0.43661
	Female	9.8060	3.90773	0.33758

result showed that gender have no significant differences for readiness, perceptions, acceptance and behavior.

6   Conclusion and Recommendation

In consideration of various efforts that have been engaged by the government to increase the awareness of Malaysian consumers toward GST, this research found that generally, 69.27 % of the Malaysian consumers understand GST and 41.6 % is willing to accept it, subject to the clarity, availability and reliability of information provided about the GST. Perceptions has the strongest association with acceptance, in which suggests that the Government should focus and enhance their effort to diminish the negative rumors on GST, in order to be able to implement it successfully.

Whilst the study has provided insights into the various factors such as demographics, communication tools, information, perception, economics, acceptance

and understandings towards GST, it has some limitations that may render some error on the findings. For one, since the data for this study was limited to Klang Valley areas, the results only reflected to the selected area and may not generalizable to other parts of the country.

Lastly, based on the above findings it can be concluded that there is a strong possibility of Malaysian to accept the implementation of GST provided that the message conveyed is clear and transparent. Notwithstanding the consumers' perception on GST, the Malaysian Government will continue to implement it by May 2015 in view of its benefits to the overall economy of the country.

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Development of Innovative Activity
in Russia: Macroeconomic Aspect

Liudmila Guzikova

Abstract In today's world innovation is the key driver of economic development, growth and competition at both the micro and the macro-economy. Result of innovative activity, appearing at the microeconomic level, have an impact on macroeconomic fundamentals, which, in turn, determine the scope of the innovation. Improving the competitiveness of the Russian economy and its successful integration into the global economic system requires to enforce innovation. Therefore the identification and comprehension of interconnections and interdependencies between the fundamentals of the national economy and the parameters of the innovation is the important task to date. In the paper the innovative activity and its institutional structure in Russia are characterized; the system of innovation indicators for the national economy is determined; the trends of innovative development in Russia are identified on the base of numerical analysis of official statistics taking into account regional aspect; the current state, prospects and priorities for the development of innovative sphere in Russia are assessed.

Keywords Innovation • Innovative development • Innovation indicators • Macroeconomic fundamentals

1 Introduction

Innovation is the factor of competitiveness in the inner and in the international markets. In modern economy the innovation is diverse and complex process. The following features are now characteristic for innovation: the variety of forms and methods of innovative activity; shortening of the implementation period for new technological, organizational and managerial ideas to introduce into a working reality; the significant changes in the mass demand and its readiness to accept innovative products, works and services; the dissipation of innovation sources in the economy and society.

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Innovation can be divided into the following types: research and development; technological preparation and organization of production (purchase of equipment, changing procedures, methods, standards and quality control, the use of new technological processes, launch of new services); start of production in order to improve product and process, trial production; marketing a new product—market research output, its adaptation and advertising; acquisition of soft technologies in the form of patents, licenses, know-how, designs, patterns and technological services; acquisition of hard technologies—machines and equipment in order to implement product and process innovation; production planning—plans, drawings, specifications, performance characteristics for the creation, development, production and marketing of new products, processes and services (Dosi 2000; Antonelli 2003).

Though the innovation is often considered as the manifestation of entrepreneurial initiative of the microeconomic level it contributes to national economy's competitiveness when the innovative process is organized within the unified innovative system (Welfens 2011). The impact of innovation on economic productivity was analyzed in the range of aspects by Steil et al. (2002). Thompson and Stam (2010) analyzed the reverse impact and proved that the macroeconomic climate affects differently on all industries and in reality the firm and the industry innovativeness results in different effects from the macro-economy.

All mentioned above enables to raise the question about the interrelations between the indicators of innovative system and the macroeconomic fundamentals and about macroeconomic significance of innovation and to analyze it paying attention on specific features of the country. In our opinion these interrelations may vary not only by industries but also by regions if the country under consideration is large enough. As the ways of future development of national economy in Russia are tightly bound with the ways and forms of innovative activity the question raised in the paper is important and timed.

2 Methodology

Qualitative and quantitative analysis of the relationships and interdependencies between the main macroeconomic indicators of the Russian economy and the parameters of the innovation process in the country is undertaken in order to identify patterns and to use them subsequently in the management of the economy. The research methodology includes: analysis of theoretical and applied scientific publications on financial-economic aspects of innovation; analysis of state statistics and current media information on innovation in Russia. Regional and generalized characteristics of the innovation process and its results are compared with the main macroeconomic indicators and reviewed from the standpoint of economic theory.

The analysis of the structure of innovation expenditures is executed in terms of funding sources, regional distribution, institutional customers and functionality. Also the rate of change of the main macroeconomic fundamentals—GDP,

unemployment rate, labor productivity—is studied in comparison with the rate of change in the characteristics of innovation.

To find empirical regularities the econometric methods are usually applied. But it should be mentioned that the official statistics on innovation is conducted in Russia only since 2009 and due to the short time series this kind of methods can't work correctly. At the time of current study the data were available for 2012 on the site of the state statistics www.gks.ru.

3 Basic Positions and Results

3.1 Innovation in Russia: Funding and Institutions

In current circumstances innovation is not perceived as an individual act causing the effect limited in space and time but as a continuous and comprehensive managed process leading to irreversible changes in the socio-economic sphere. The exclusive role of the government in targeting of the innovative development vector and integral results of innovation process should be noted.

The innovation funding in Russia includes two main types of investment resources: (a) public investment resources (budgetary funds, extra-budgetary funds, government borrowing, shares, state property); (b) private investment resources including the financial resources of business entities, as well as public organizations, individuals, private resources of institutional investors, insurance companies, investment funds and companies, private pension funds. They also include companies' own funds and loans of commercial banks, other financial institutions and specially authorized government investment banks. The Fig. 1 shows the ratio of two types of resources mentioned above.

We can see that the volume of each source growth and the share of the volume of each source growth and the share of governmental funding has tendency to increase but is still less than 40 % of total volume. Total volume of the innovation funding constituted 680,063.8 million rubles in 2009 and grew up to 1,010,981.8 million rubles in 2012, i.e. by 48.66 %. Since 2009–2012 the volume of budget funding grew from 461,006.2 to 655,061.7 million rubles, i.e. by 42.09 %, while the volume of internal funding grew from 219,057.6 to 355,920.1 million rubles, i.e. by 62.48 %.

The percent of the federal expenditures channeled to innovation is rather small and did not exceed 3 % and constitutes less than 1 % of GDP (Table 1). The most part of governmental expenditures is assigned to applied research and its share has tendency to increase. By our opinion this fact reflects the intention to shorten the innovative cycle and to accelerate the commercialization. While the expenditures on fundamental research did not change noticeably, the expenditures on applied research increased almost twice in 4 years.
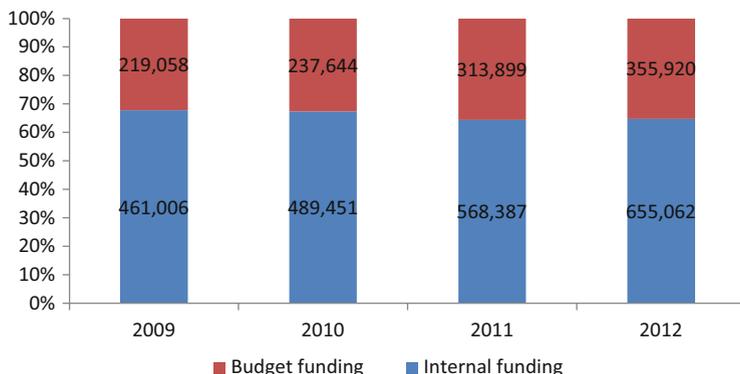
Fig. 1 The ratio of governmental and internal funding of innovation, million rub

Table 1 Governmental expenditures on R&D in 2009–2012, million rub

Indicator	2009	2010	2011	2012
Total expenditures of the Federal Government on civil science, million rub. including	219,057.6	237,644.0	313,899.3	355,920.1
Fundamental research	83,198.1	82,172.0	91,684.5	86,623.2
Applied research	135,859.5	155,472.0	222,214.8	269,296.9
The share of expenditures on applied research, %	62.02	65.42	70.79	75.66
Percent of federal budget expenditures, %	2.27	2.35	2.87	2.76
Percent to GDP, %	0.56	0.51	0.56	0.56

Source Composed by the author according to State Statistics data

According to the Program of Fundamental Scientific Research for long-term period (2013–2020) the volume of funding must increase from 83,184 million rub. in 2013 to 127,732 million rub. in 2020, i.e. by 52.5 % and the average annual growth should exceed 7 %.

Traditionally in Russia the State Academies are the centers of both fundamental and applied research while the universities' science played the secondary role. More than 75 % of funding is planned to allocate in State Academies while other grant holders including State Research Institute Kurchatov, Ministry of Health, Ministry of Education and Science, State Scientific Funds and subsidies to individual and legal entities get the rest. By our opinion the Program will not contribute to successful reformation of the higher education system and will not also allow the Russian universities to strengthen their positions in the world science.

The decrease tendency of the fundamental research funding appears also in the allocation of internal expenditures on scientific activity (Fig. 2). The share of research—both fundamental and applied—does not exceed 40 % of total amount.

Institutional environment in the national innovation system is a set of interrelated and interdependent legal, political, economic, legal and socio-cultural
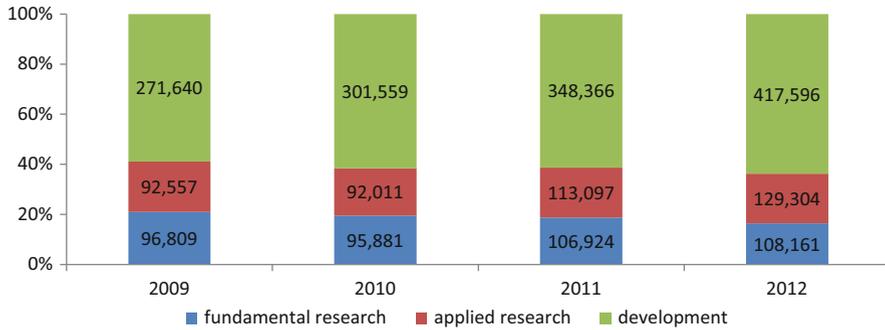
Fig. 2 The structure of internal R&D funding

institutions that underpin the incentives to innovate. Process of formation and development of innovative economy should proceed in parallel with the creation and development of relevant institutions. The institutional environment determines the type of economic growth, its quality and efficiency. It forms the basis of the conditions determining the sustainable socio-economic development of the country (Krutchankova and Bukhtiyarova 2013).

Macro level of the institutional environment of innovation can be specified as the level forming the institutions and determining the "rules of the game" (Valieva 2007): laws and regulations; contract law; property rights; enforcement (system of enforcing contracts); socio-cultural norms; institutional trust.

By the opinion of some Russian researchers shared by the author the now-days state of the main institutes necessary for successful innovative development is determined by so called institutional traps. The most crucial are the following (Malkina 2011):

– psychological immaturity as a range of psychological problems, such as skepticism and nihilism, or, conversely, satisfaction and complacency, risk aversion, change aversion, lack of understanding the problem and the ways of its solving, low level of mutual trust and respect for the rules and regulations;
– rent-seeking behavior—in countries rich in natural resources the assignment of natural resource rents become more effective short-term pattern of behavior than developing ways to increase the value added. Value added in the mineral extraction sector goes with less effort and less risk;
– trap of catch-up development and copying. As short-term behavioral pattern copying may be more efficient from the standpoint of economy than creating a new product, technology or organization improvement;
– reluctance of business to invest (both equity and debt) in its development. So that reproduction of the research base occurs insufficient. Innovation is related to investments in specific assets paying off over a long period and simultaneously to high-risk and uncertainty. More preferred is often an increase in personal income of business owners;

– trap of the public finance system—is a set of problems related to the low efficiency of production of public goods in modern Russia. In the context of innovative development these issues are of particular importance because in low private investment it is necessary to achieve high allocative efficiency in the allocation of governmental funds;
– imitation of innovation. This problem is directly related to the previous one, i.e. to inefficient control in public funding;
– the lack of the innovation environment organizational unity.

3.2 Innovation Indicators and Macroeconomic Fundamentals

The share of innovative products, works and services in GDP grew since 2008–2012 from 2.41 to 4.62 %. In Table 2 the rates of change of key macroeconomic indicators and indicators of innovation are presented. It is evident that dynamics of innovative indicators is much more intensive. It should be also mentioned that the most of indicators grew in 2011 rapidly than in the previous and the next years while the rate of GDP growth fell down from year to year.

According to economic theory innovation should increase labor productivity and simultaneously decrease the level of employment in short term period. But due to the small share of innovative products in GDP it is not possible to trace these connections surely. However in 2011 when the rate of innovation grew by 69.4 % the labor productivity increased by 3.8 % that is slightly more than in other years. Rather paradoxical observation is the growth of the employment rate by 1.9 % right in this period.

The technological innovation constitutes the most part of innovation in Russia. According to state statistics the expenditures on technological innovation include (a) research and development of new products, services and methods of production (transfer), new production processes; (b) production design and development and other (non-R&D) of new products, services and methods of production (transfer), new production processes; (c) purchase of machinery and equipment related to technological innovation; (d) purchase of new technologies; (e) purchase of software; (f) other pre-production means for new products, services and methods of

Table 2 The rate of change of macroeconomic indicators, %

Indicator	2010	2011	2012
GDP	4.5	4.3	3.4
Volume of innovative products, works and services	33.1	69.4	36.4
Share of innovative products, works and services in GDP	11.6	39.8	22.9
Employment rate	1.1	1.9	1.6
Labor productivity	3.2	3.8	3.1

Source Composed by the author according to State Statistics data

production (transfer), new production processes; (g) personnel training related to innovation; (h) marketing research; (i) other expenditures on technological innovation.

Among the total amount of expenditures to this type of innovation two large shares may be highlighted—R&D of new products, services and methods of production (transfer), new production processes which constitute 35.89 % and purchase of machinery and equipment related to the technological innovations which constitutes 42.08 % (Table 3). These shares reflect two main directions of innovative development of the country according to two strategies suggested by Russian scientists: modernization strategy—development of Russian economy through the modernization and adaptation of technologies developed and cultivated in foreign countries (Polterovich 2009): technological breakthrough strategy—the development priority of industry emerging sixth technological order (Glazyev 2009). Now the modernization strategy dominates as it is the shorter way to overcome the technological backwardness and to lead the economy to the now-days technological level.

3.3 Innovative Development: Territorial Aspect

The expenditures on innovation are unevenly allocated by regions of the country. The expenditures in Fig. 3 include both governmental and internal expenditures on technological innovation. The most part belongs to Central and Volga Federal Districts. In these regions the big number of R&D organizations is situated traditionally. The third position is occupied by Urals Federal District where

Table 3 Structure of expenditures to technological innovation in 2012

Objective of expenditures	Share, %
Research and development of new products, services and methods of production (transfer), new production processes	35.89
Production design and development and other (non-R&D) of new products, services and methods of production (transfer), new production processes	4.02
Purchase of machinery and equipment related to the technological innovations	42.08
Purchase of new technologies	1.64
Including rights to patents, licenses of the use of inventions, industrial samples, utility models	0.21
Purchase of software tools	1.57
Other pre-production to release new products, introduce new services or methods of production (transfer)	5.77
Personnel training related to innovation	0.50
Marketing research	0.31
Other expenditures on technological innovation	8.22

Source Composed by the author according to State Statistics data
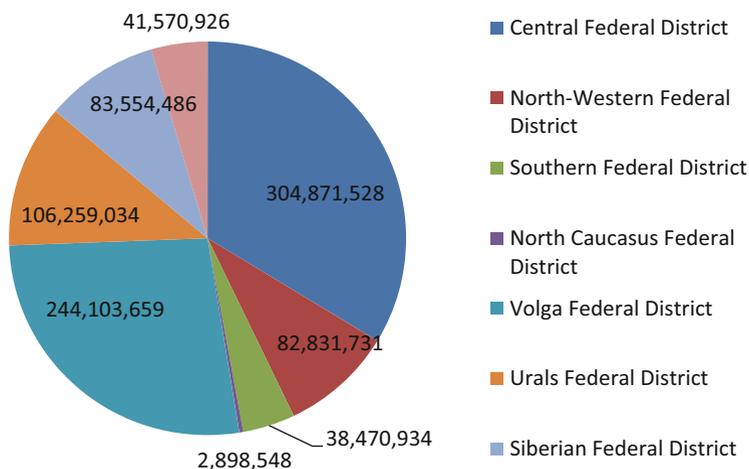
Fig. 3 Regional structure of expenditures on technological innovation in 2012, million rub (*Source* Composed by the author according to State Statistics data)

the large part of Russian heavy industry—metallurgy and machine building—is concentrated.

More detailed analysis showed that R&D expenditures oriented to new products exceed the expenditures on purchase of machinery only in Central Federal region and constitute 49.56 % of total amount. In other regions the expenditures on purchase of machinery and equipment connected to new technologies are significantly greater than expenditures on R&D. In Far Eastern Federal District the share of this kind of expenditures constitutes 83.11 %, in North Caucasus—60.82 %, in Southern Federal District—56.60 % and in Urals Federal District—55.24 %. Thus, it is confirmed that the modernization strategy now dominates on regional level and as the result—in the whole Russian economy.

The average share of innovative products, works and services constitutes 7.99 % and in five regions of the total eight the level of this indicator is lower (this values are highlighted in Table 4). It should be mentioned that in Table 4 the internal expenditures on all kinds of innovation are shown. We can also see exceptionally high share of the innovative products, works and services in Far Eastern Federal District for which the exceptionally high share of purchase of machinery and equipment is characteristic. One more time the short term efficiency of the purchase of machinery and equipment is approved as the efficiency indicators in Far Eastern Federal District are the highest.

In Table 5 some indicators of innovative productivity in Russia as the whole and in regions are presented: researchers' innovative productivity, innovative expenditures per researcher and index of innovative profitability. Researchers' innovative productivity was calculated by dividing of the total amount of shipped innovative products, works and services by the number of researchers. Average revenue of

Table 4 R&D regional revenue and internal expenditures in 2012

Region	Shipped products, works and services, million rub.	Shipped innovative products, works and services, million rub.	The number of researchers	Internal expenditures on innovation, million rub.	The share of innovative products, works and services, %
Russia	35,944,433.7	2,872,905.1	372,620	699,869.8	7.99
Central Federal District	972,759.5	938,153.2	194,890	369,069.5	10.23
North-Western Federal District	4,095,204.7	298,020.1	53,688	100,002.7	7.28
Southern Federal District	1,731,151.0	51,801.6	11,951	18,618.0	2.99
North Caucasus Federal District	347,998.3	27,010.1	4,736	3,448.1	7.76
Volga Federal District	7,458,276.8	950,604.8	52,121	109,155.0	12.75
Urals Federal District	7,239,168.9	148,696.2	21,417	40,420.2	2.05
Siberian Federal District	4,390,819.8	117,118.0	27,164	47,011.7	2.67
Far Eastern Federal District	1,509,054.7	341,501.1	6,653	12,144.6	22.63

Source Composed by the author according to State Statistics data

innovation for one researcher in Russia was equal to 7.7 million rubles. The maximal value was observed in Far Eastern Federal District—51.3 million rubles, the next is Volga Federal District with 18.2 million rubles. In other regions the indicator varies from 4.3 to 6.9 million rubles. So there is no pronounced relation between the dominating form of technological innovation and researchers' productivity.

Innovative expenditures per researcher were calculated by dividing of the total amount of innovative expenditures by the number of researcher. This indicator also has the maximal value in Far Eastern Federal District. The index of innovative profitability ranks the regions by the proportion of innovative revenue to innovative expenditures. The values of this indicator can be interpreted in the following way: (a) high innovative productivity of Far Eastern Federal District is explained by

Table 5 Innovative productivity in 2012

Region	Researchers' innovative productivity, million rub.	Innovative expenditures per researcher, million rub.	Index of innovative profitability
Russia	7.7	24	3.2
Central Federal District	4.8	1.6	3.1
North-Western Federal District	5.6	1.5	3.6
Southern Federal District	4.3	3.2	1.4
North Caucasus Federal District	5.7	0.6	9.3
Volga Federal District	18.2	4.7	3.9
Urals Federal District	6.9	5.0	1.4
Siberian Federal District	4.3	3.1	1.4
Far Eastern Federal District	51.3	6.2	8.2

Source Composed by the author according to State Statistics data

exclusive options of the region for the import of innovative machinery due to the border position; (b) high innovative productivity of North Caucasus Federal District can be explained by the fact that this region has options to import the productive technologies and the number of researchers is relatively small; (c) innovative productivity of Volga Federal District is related significantly with the innovation in oil production financing both by oil companies and the government; (d) Central and North-Western Federal Districts have combination of scientific and industrial potential which is realized in the relatively high values of the indicator; (e) regions with smaller scientific or industrial capability have the lower values of innovative productivity.

4 Conclusions

The research has led to the following conclusions.

The efficient innovation in Russia should combine the fundamental research as the base of long term development and future revenue and the technological modernization through purchase of modern machinery and equipment as the base of current improvements.

Creating a favorable long term institutional environment for innovation in the macroeconomic scale requires the formation of basic conditions for the entrepreneurship development, protection of property rights, support of fair competition,

anti-bureaucratic arbitrariness, improvement of innovation infrastructure and international cooperation in innovation.

The key macroeconomic fundamentals under influence of innovation are GDP, gross added value, labor productivity and employment level. The short period of statistic observations and very small contribution of innovation to national economy does not allow to trace the relationship of innovation indicators and macroeconomic fundamentals but the methodology of such study should be worked out in advance.

Three indicators of relative efficiency of innovation are proposed: the ratio of the revenue from innovative products, works and services to the number of researchers, the ratio of internal expenditures to the number of researchers, the ratio of the revenue from innovative products, works and services to innovative expenditures. In our opinion the indicators mentioned above can be used for special and time comparisons and allow to determine the directions of funding and the most appropriate objectives of innovation both in regional and in macroeconomic scale.

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Political Economy of Innovation and Export Performance in the Emerging Market in the Light of the Regulations: Turkey After 1990s

Omer Tugsal Doruk and Ergul Soylemezoglu

Abstract Innovation is essential for the economy due to it accelerates to growth process. Due to technology lowers to cost and time for production stage, innovation is crucial for the economic growth. In this paper, technology intensive exports of the real/manufacturing sectors and regulatory framework, and its relation to the regulatory framework are examined in the emerging market. In this paper, the regulatory framework of innovation activities and its impact on technology intensive exports in Turkey are examined between 1990 and 2010. Obtained results show that there is some technology intensive exports interaction with the regulatory framework, there is technology intensity exports and the regulatory framework interaction is crucial in the long term, and there is no R&D intensity exports of the manufacturing sector in the short term.

Keywords Industrialization • Innovation • Political economy • Turkey

1 Introduction

The main drivers and determinants of innovation are political, regulatory and/or incentive frameworks could be counted as essential for the economy. In the countries those are intensive for export led growth policy for economic growth and development, the technology intensive sectors are essential for gaining comparative advantage, hence for ameliorating to GDP per capita. Due to those reasons, regulatory framework of the innovation activities is crucial for economic growth, also. The countries of which growth policies based on export led growth, R&D intensive exports have critical importance for economic growth, especially for the developing countries.[1]

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[1] Due to the terms of trade effect, R&D intensive exports are catalyzer for the economic growth.

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In this paper, technology, in terms of R&D spending, and technology intensive exports relationship is examined within the regulatory framework, and the interaction of the relationship with the regulatory framework between 1990 and 2010 thereby simple robust OLS method for Turkey, which is one of the most important emerging markets in the world. Furthermore in this paper, political economic environment of innovations of which main aims the reaching to broader consumer/customer in the long run, the political incentives, subsidies and regulative framework are investigated and scrutinized after 1980s in Turkey, within the globalization and industrialization era in Turkey.

The theoretical framework was given in first chapter, and in second chapter, empirical assessment is discussed, and in the last part of the paper, the results were discussed.

2 Theoretical Underpinnings of the Innovation and Development

Technology and economic development relation is essential for the economy. The roots of the relationship between the technology and economic development are dated with Schumpeter (1912). Schumpeter (1912) emphasized creative destruction features of innovation activities for economic growth.

The simple production process is taken as according to Solow (1957) Growth Model;

$$Y = A\,F\,(K,\ L) \tag{1}$$

Where K and L are capital and labor, respectively. A often denotes technology and improvements in the sector/economy. A increases to labor productivity and decreases to k per labor. Therefore A, innovation and technological development, is essential for the economics, especially, in the emerging markets. However, Solow growth model assumes that the A is exogenous for the economy. After Solow growth model, the endogenous growth models assume that the A is endogenous for the economy. The work dated with Romer (1990). However, Romer's (1990) R&D growth model assumed that technology is endogenous and one of the main source of economic growth.

McCahery and Vermulen (2001) and Westlundab et al. (2014) emphasize that generating new legal structures and government policies are crucial for innovation and start-ups. Srholec (2005) pointed out that the empirical literature confirms high-tech products are accelerating to economic growth, and developing countries export the high-tech intensive goods.

For Turkey, concentrating on export led growth policies, R&D and export relation is crucial for economic growth. However, there might still lack of infrastructure for technological development, investment, and climate for that aim.

3   Industrialization in Turkey After the 1980s

After 24th January 1980 Decisions, new industrialization era begun after Turkey had left export substitution industrial policy.[2] In this era, Turkish economy has been a more intensive for export oriented policies. Thus, manufacturing sector's role has been crucial for the economy for achieving to the goals of the policies. After 24th January Decisions,[3] Turkish economy has had experienced export oriented policies, and the financing of the policies has been feeding up by capital inflows.

Doruk et al. (2013, pp. 588–589) pointed out that the 24th January Decisions aimed at;

> In 1978, as a result of failure to pay the short-terms liabilities,. . . In the light of these developments, the "neo-liberalism" movement that started to be effective world-wide with Reaganomics and Thatcherism; the pressure by IMF, World Bank and OECD (that provide loan funding), and resigning of Demirel government, which led to the economic regulations to be called later as the Decisions of January 24, 1980, by the military coup led to that the military government undersigned the Decisions of January 24, 1980 for Turkish economy.

The structural shifts in the economy have been directed to the economy after 1980. Furthermore Altıok and Tuncer (2013) pointed out that the structural productivity shift in the manufacturing sector could be derived from the 24th January Decisions, and is beyond the export led growth strategy which was applied. For Memis (2007) the rates of return has had increased path in the industry after the 24th January Decisions, which summarized to the new phase of Turkish economic system. For İsmihan and Metin-Özcan (2009) and Rodrik (2000), the development of industrialization era in the 1980s can be seen compared to the 1980s.

The innovation path of the industry is seen in Fig. 1, which shows innovation activities have been accelerated after the 2000s, especially after 2004 when the economy had been grown up after the 2001 crisis. As seen in Fig. 2, the exports of low technology intensive sector had increased to when the exports of medium-low intensive sector increased more than of the low technology intensive sector.

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[2] In this framework, infant industry policies were misleading policies for achieving to the industrialization target for Turkey, before the 1980s.

[3] In the light of the decisions of 24th January, Turkish Government embarked upon a series of reforms designed to accomplish the followings: remove price controls and subsidies, lessen the role of the public sector in commerce, emphasize growth in the private sector, stimulate private investments and savings, liberalize foreign trade, reduce tariffs, ease capital transfer exchange controls, privatize the Central Bank and reform the taxation system (Etkin et al. 2000).
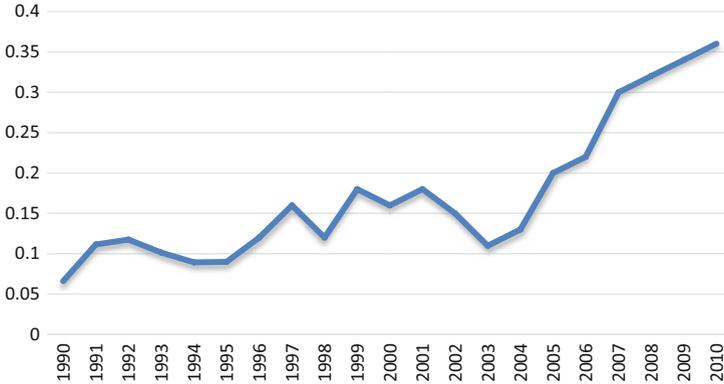
Fig. 1 The innovation path of the industry, R&D expenditures by business enterprises as of GDP %, between 1990 and 2010 [*Source* OECD (2014)]
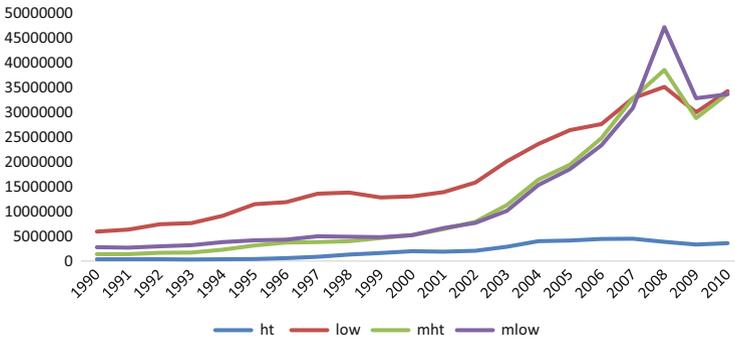
Fig. 2 The export performance of the industries in Turkey, between 1990 and 2010, $1,000 [*Source*: OECD (2014)]

4 The Regulatory Framework of the Innovation Activities in Turkey

The regulatory framework has been developing after the 1990s in Turkey, which is seen in the regulatory and incentive actions, plans in Turkey.

The patents are under the protection of the statutory decree no 551 having been effective since 1995 in Turkey. And the R&D deduction (incentive) is specified in the section "Other reductions" of the Corporate Tax Law No 5520. In order to benefit from the supports and incentives provided to the Technology Development Zones intended to be established, the companies are to be situated in the Technology development Zones (through establishing a new company/ opening a branch of any existing company) as specified in the Technology Development Zones Law No 4691. The "Law 5746 on Supporting Research and Development Activities" accepted on 28/2/2008 in order to promote innovation in our country was become

Table 1 R&D framework in Turkey, in terms of regulation after the 1990s

Corporate tax law No 5520 (Art. 10/1-a)	Law 5746 on supporting research and development activities	Technology development zones law no 4691
100 % R&D discount	100 % R&D discount	Corporate tax exemption
	Income tax withholding support (80–90 %)	Income Tax exemption (100 %)
	Support for employer's share in social security premiums (50 %)	
	Stamp duty exemption	Stamp duty exemption (payrolls)
	–	VAT exemption

Source PWC (2014)

effective at the beginning of the month following the issuance of the Law after issuance thereof in the Official Gazette No 26814 dd. 12 March 2008 to be applied until 31/12/2023. In this sense, it is believed that the full effects of this law were commenced as of 2009 This law covers the supports and incentives related to the technology centers and R&D centers in Turkey established as per the Law no 3624 dd. 12/4/1990 by the Small and medium Sized Industry Development and Supporting Administration presidency, R&D projects and pre-competition collaboration projects as well as techno-venture capital. There are laws in our country supporting innovation, which emphasized to establishment of KOSGEB. Such laws and the advantages granted thereunder are given below; R&D Reduction under the Corporate Tax law No 5520, supports and Incentives provided under the Law No 5746, Supports and Incentives provided under the Law No 4691, and Cash Support Programs (PWC 2014). The regulatory framework of innovation in Turkey was depicted in Table 1. [4]

5 Empirical Framework

In the empirical analysis of the paper, simple ordinary least squares (OLS) method is used due to accessing to limited data in Turkey.[5] The time span is between 1990 and 2010.

The hypotheses of the paper are as follows;

H1: R&D expenditures by industry accelerate to the technology/R&D intensive exports thereby the regulations.

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[4] Furthermore the national programs are as follows: TÜBİTAK-TEYDEB Support Programs, TTGV (Turkey technology Development Foundation) R&D Project Supports, San-Tez Support Program, KOSGEB Support Programs, International Programs, European Union (EU HORIZON 2020 Programme), Eureka and Eurostars Reduction, exemption, support and incentive elements covered under the laws specified tax deduction, income tax withholding support, social security premium support, stamp duty exemption, techno-venture capital support, R&D support, and corporate tax incentives (PWC 2014).

[5] The data are available after 1990 for Turkey. For detailed information; stats.oecd.org

H2: All the regulations are effective in the long term for interaction with the technology/R&D intensive exports in Turkey.

H3: High technology intensive sector is less effective for the exporting of technology/R&D intensive goods in Turkey due to late established regulatory framework in the industrialization progress.

In the light of the hypotheses, in this paper, four models are calculated, which are examining to the relation between technology/R&D intensive sector exports and regulatory framework in Turkey. The models are based on the equations are as follows;

$$HTX = \beta 0 + \beta 1 R\&Dt + \beta 295t + \beta 308t + \beta 495*HTXt + \beta 508*HTXt + \varepsilon t \quad (2)$$

$$LTX = \beta 0 + \beta 1 R\&Dt + \beta 295t + \beta 308t + \beta 495*LTXt + \beta 508*LTXt + \varepsilon t \quad (3)$$

$$MLTX = \beta 0 + \beta 1 R\&Dt + \beta 295t + \beta 308t + \beta 495*MLTXt + \beta 508*MLTXt + \varepsilon t \quad (4)$$

$$MHTX = \beta 0 + \beta 1 R\&Dt + \beta 295t + \beta 308t + \beta 495*MHTXt + \beta 508*MHTXt + \varepsilon t \quad (5)$$

where HTX denotes high technology industry exports for Model I; LTX denotes low technology industry exports for Model II; MLTX denotes middle-low technology industry exports in Model III; MHTX denotes middle-high technology industry exports in Model IV, respectively. R&D is R&D expenditure by business enterprises as of GDP. 95*HTX and 08*HTX denote the 1995 regulation and 2008 regulation interaction terms for high technology industry exports. 95*LTX and 08*LTX denote the 1995 regulation and the 2008 regulation interaction terms for low technology industry exports. 95*MLTX and 08*MLTX denote the 1995 regulation and the 2008 regulation interaction terms for low medium technology industry exports. 95*MHTX and 08*MHTX denote the 1995 regulation and the 2008 regulation interaction terms for medium high technology industry exports.

The correlation relation between the variables is depicted in Table 2. As seen in Table 2, R&D expenditures by business enterprises are highly correlated with medium-low industry exports, and high-medium industry exports positively by 90.6 and 90.9 %, respectively. Also the correlation analysis indicates that there might be multicollinearity problem if the variables will be used together for multivariate regression analysis.[6] Due to ordinary least squares estimations have autocorrelation and heteroscedasticity problem, all the models are in Table 3 estimated with robust standard errors.[7]

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[6] Multicollinearity problem is defined as a high degree correlation between the independent variables in the multivariate regression analysis. For avoiding to the estimation bias, all the independent variables were separately used in the regression analysis.

[7] All the models were estimated with standard errors (not robust) before, however, due to autocorrelation and heteroscedasticity problems, we estimated robust models. The non-robust estimates could be requested by the authors.

Table 2 Correlation relation between the variables

Variable	High technology industry export	Medium-low industry export	Medium-High industry export	Low industry export	R&D expenditures by business enterprises_
High technology industry export	–				
Medium-low industry export	0.811794	–			
Medium-high industry export	0.878244	0.985991	–		
Low R&D industry export	0.927993	0.946087	0.978148	–	
R&D expenditures by business enterprises	0.735561	0.906668	0.909066	0.882947	–

Table 3 Estimation results

	Dependent variable: high technology industry exports	Dependent variable: low technology industry exports	Dependent variable: medium-low technology industry exports	Dependent variable: high-medium technology industry exports
$R\&D$ by business enterprise$_t$	−17,699.69 (0.55)	884,985.5 (0.74)	−256,308.7 (0.80)	−5,297.0 (0.99)
D_{2008}	6,698.32 (0.56)	−280,912.8 (0.74)	79,863.56 (0.80)	1,569.56 (0.99)
D_{1995}	−360,259.3 (0.00)	−7,259,320 (0.00)	−3,092,838 (0.00)	−1,700,766 (0.00)
Constant	362,118.6 (0.00)	7,205,440 (0.00)	3,120,383 (0.00)	1,701,361 (0.00)
I_{D2008}	−0.001 (0.57)	0.005 (0.75)	−0.001 (0.80)	−0.000351 (0.99)
I_{D1995}	1.00 (0.00)	0.99 (0.00)	1.001 (0.00)	1.00 (0.00)
R^2	0.99	0.99	0.99	0.99
$F\ stat_{p\ value}$	0.00	0.00	0.00	0.00

Note: the p values are shown in the parentheses. F statistics show the p values

According to the estimation results, there is a significant and negative relation between 1995 regulation and high technology exports, high medium technology exports, low medium technology exports, and low technology exports directly. There is no direct effect and interacted benefits of 2008 regulation for technology exports of the manufacturing sector. However, the regulation of 1995 negatively affected on high, low, medium low and high medium technology exports. However, the interaction of the regulation of 1995 has been positively affected on high technology and high medium technology exports. The regulation supported to

high technology exports, high medium technology exports, medium low technology exports, and low technology exports. The R^2 of the all models are very high, and according to F statistics, all the estimated models are sensible and significant. For decision for hypotheses; all the hypotheses are valid, and not to be refused.

6   Concluding Remarks

In this paper, the political economic framework of the innovation and export performance of the manufacturing sector in Turkey are trying to be drawn after the 1990s.

The 24th January Decisions are crucial for the structure of industry and indus-trialization progress for Turkey. After the decisions, manufacturing has had pro-gressively increasing path in Turkey. In this progress, two regulations are important for innovation activities which are 1995 regulation and 2008 regulations. Obtained results show that there are positive effects of the 1995 regulation in terms of interaction of the technology intensive sector. However, the results indicate that there is no significant interaction between the technology intensive exports and the regulation of 2008; the results show that there is a long term need for the expected impact of 2008 regulation in the markets.

Obtained results indicate that our hypotheses are not refused and valid. The hypotheses of the paper are crucial for understanding the long term impact of the regulations on R&D intensive exports, and for economic growth in Turkey. The results were found that *R&D* expenditures by industry accelerate to the R&D intensive exports thereby the regulations in the long term, not in the short term. All the regulations are effective in the long term for interaction with the R&D intensive exports, especially in the developing countries. High technology intensive sector is less effective for the exporting of R&D intensive goods in Turkey due to late established regulatory framework in the industrialization progress.

The limitation of the study is lack of data availability. For further studies, it might be available time span for estimating detailed analysis and/or models.

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Towards Destination Stewardship: Forecasting Financial Performance of Responsible Tourism on a Selected Croatian Destination

Adriana Galant and Tea Golja

Abstract Tourism is a multifaceted industry with high economic significance. Its multiplier effects show wide range of sectors that benefit from tourism. Whilst touting economic benefits of tourism, one has to be cautious because tourism activities involve economic costs as well. Additional costs can occur if planning, development and operations in tourism are not properly managed. Sustainable tourism lies at the core of destination stewardship. Destination managers need to be able to forecast economic, environmental and social trends affecting tourism. Thus, destination planning is crucial in balancing developments of tourism and controlling its growth. In this paper authors test various possible tourism scenarios on the total revenue generated from tourism for a 7-year projection period. Every scenario is based on destination planning. The case study destination used for scenario modelling was Labin-Rabac. The forecasts are based on three broad types of drivers: season extension outside the traditional July and August months, growth of accommodation capacity (number of bed places) and growth in the average tourists' expenditure. The methodology used for scenario analysis is: historical method, deductive method, analysis (particularly horizontal analysis of the income statement which provided information about tendencies and change dynamics on its positions), synthesis, and mathematical methods.

Keywords Destination management • Tourism scenario modelling • Labin-Rabac tourist destination • Financial reporting

1 Introduction

Although the extreme positive influence tourism has on the national economy (more in: Stynes 1997 for multiplier effect), if the effects of tourism are not properly balanced, controlled and managed, at the end, the impacts can pose serious threats to sustainable tourism development of the destination—whether economic,

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socio-cultural and environmental. Public and private sector involved in tourism depend on planning to achieve sustainable development. When planning tourism development it is important to determine the appropriate scale of tourism for the local environment and culture.

In line with that it is important to recognize the limits and capacity of destination's resources in order to encourage the development which meets and properly balances economic, socio-cultural and environmental benefits. To achieve economic aims and maintain sufficient infrastructure, destination governance needs to be based on transparency, accountability, inclusiveness and fairness (Ruhanen et al. 2010; Bornhorst et al. 2010; Williams 2010; Pradhan and Sanyal 2011; Scott 2014). Viable economic development management strategies maximize beneficial tourism for their communities and seek to further good destination stewardship.

There are several purposes of this paper. First is to enlighten the importance of destination planning in destination stewardship process. Second was to show how the cautious planning process may affect tourism development and total turnover in the hospitality sector in the selected destination. Third was to provide estimates of the changes that take place in a destination's economy due to proposed actions (scenarios) and the tourism multiplier effect. And finally to stimulate discussion and seek views as to whether this is an area that needs to be given more attention.

The aim of the paper is to present three scenarios based on proposed actions that may bring beneficial consequences to destination's economy. All of the proposed actions bear in mind sustainability of tourism development in Labin-Rabac tourism destination. Utilizing findings of the research, supported by the theoretical background, authors emphasize the importance of destination planning and development for long run sustainable tourism development.

A review of the concept of destination stewardship within the concept of destination planning is provided in the first part. The second part of the paper shows the correlation between planning of the future development and financial performance of hospitality sector in Mediterranean destination of Labin-Rabac. This was further enriched with the modelling of general turnover impact on the regional economy.

2   Literature Review

Tourism is an economic development tool. Being one of the most dynamic sectors of the economy it encourages growth in the primary and secondary sectors through direct effects, indirect effects and induced effects. *Direct effects*, account mostly to tourism-related business in the area (various accommodation establishments, hospitality industry—bars, restaurants, pubs). *Indirect effects*, account to a broader set of economic sectors that serve these tourism firms (mostly their suppliers). *Induced effects* include the impacts of household expenditures, from the income earned in a directly or indirectly affected industry. Obviously, the concept of tourism goes far beyond the third sector (Bartoluci and Budimski 2010).

Tourism is an important source of employment. It increases tax revenue and positively contributes on national balance of payment, gross income and production. Generally, tourism comprises 9 % of the global GDP, employs every 11th person in the world, it generates 1.3 trillions of USD in exports or 3.5 billion USD a day on average. Tourism makes 6 % of the world's trade (export of goods and services) or 30 % of the world's export of services alone and 6 % of exports of least developed countries (UNWTO 2012).

But, tourism can leave negative impacts on local livelihoods and economies as well as involve economic costs. By pushing up local prices and the country's exchange rate, it can leave those outside the tourism sector worse off. Money made in the destination can be swallowed up by foreign travel companies (reflux of money abroad). It can also deprive local people to access to the natural resources on which they rely, such as fishing, grounds, forests and water (Ashley et al. 2007, p. 9). There is a high possibility of disappearance of local culture, destination integrity and authenticity. Tourism relies on the clean and unspoilt environment and pleasant climate but exceeding the carrying capacity of destination can pose serious threats to natural environments. This can even bring to the collapse of important resources or systems. Biodiversity can be lost and landscapes distorted. Along these lines, unplanned and uncontrolled tourism growth can result in such a deterioration of the environment that tourist growth can be compromised (Creaco and Querini 2003).

To avoid possible negative consequences, destination stewardship process should be brought at the forefront of destination's development. In the process of upholding the main principles of destination stewardship, environmental protection and resource conservation, social well-being and equity should stay aligned with economic prosperity and continuity. Destination stewardship is a process by which local communities; governmental agencies, NGOs, and the tourism industry take a multi-stakeholder approach to maintaining the cultural, environmental, economic, and aesthetic integrity of their country, region, or town (Global Sustainable Tourism Council 2014b). It is a coalition of many organisations and interests working towards a common goal. Destination stewardship refers to the management structures required to support such development and produce positive externalities. The processes that involve coordinated actions to benefit destination's environment, residents, businesses and visitors are harmonized. Destination management is central to the delivery of sustainable tourism as often actions taken within destinations are best able to influence the tourism impacts (Destinet 2013). Effective destination management looks in the future whilst searching for proper strategies which are to be efficiently implemented. Destination governance should be carried out by local authorities in partnership with other tourism stakeholders (private and public institutions). They need to work together on planning and management of tourism respecting the values and principles of openness, participation, consultation, dialogue, innovation, coordination, strong leadership, effectiveness and accountability. Smart stakeholder approach in destination management is a prerequisite upon which tourism destinations maintain their positive developmental path and competitiveness. Good governance is an evolving

process and it is shaped by the institutional and social context. It can accelerate growth, equity, and human development potential for the people and the society. A destination management organization (DMO) acts through the process of destination governance. It seeks to 'orchestrate' decision making on design, organization and management of relationships in the network, on which the economic performance of both DMO and its stakeholders depends (D'Angella and Go 2009, p. 429). Destination management organizations (DMOs) play a particular role in efforts to ensure that the expectations of stakeholders are satisfied to the greatest extent possible (Ritchie and Crouch 2003). Only an agile DMO can respond to the complex task involving and supporting multiple dynamic relationships with stakeholders, each with their peculiar sensitivities, needs and priorities (D'Angella and Go 2009, p. 431). Based on the research results, unique to DMO success are supplier relations, effective management, strategic planning, organizational focus and drive, proper funding, and quality personnel (Bornhorst et al. 2010).

Destination planning is the most important phase in destination management. It is a roadmap for all the tourism stakeholders. However, due to its interdependence with other sectors of the economy, it is difficult to analyse and plan for tourism. But, it is not impossible. Provision of timely and reliable research-based information for planning should help to reduce the risks to the sector (Jarraud 2014). Bučar et al. 2010) see the achievement of long-term success and viability in tourism through application of the principles of sustainability and responsible tourism in the process of planning and development. This is what Ruhanen (2012) explains through the strategic visioning concept which becomes apparent in terms of the adoption of techniques that shift stakeholder participation in destination planning from simply consulting to the meaningful engagement of stakeholders in joint decision-making (Ruhanen 2012, p. 158). Typical stakeholders in tourism planning process are (Yigitcanlar 2009): *local businesses*, *residents*, *activist groups*, *tourists*, *national business chains, competitors, government, employees*. There are others such as *investors/developers, land owners, environmentalists (activist groups), industry associations, tourism marketers*. Stakeholders are extremely important for assuring the quality of the overall tourism experience and they influence tourism development in many ways including tourism supply and demand, regulation, and management of tourism impacts, human resources and research (Waligo et al. 2013, p. 343).

Sustainable Tourism Online (2014) sees destination planning as a collaborative process and coordinated approach based on the understanding of the environment (internal and external), tourism supply and demand. Destination planning involves a number of steps and activities that include designing, financing, developing, and marketing of a destination to attract the visitors (School of Travel Industry Management 2007). The result of the planning process should be visible in developing strategic directions for destination (tourism master plan) with clearly defined vision, goals, strategies and action plan. Planning is an on-going and cyclical process reflected through destination stewardship.

Destination stewardship is a continuous process and it requires constant monitoring of impacts, introducing the necessary preventive and/or corrective measures

whenever necessary (UNEP and UNWTO 2005). Motivations for tourist destination monitoring are: (European Union DG Enterprise and Industry 2013b, p. 8) improved information for decision making, effective risk management, and prioritization of action projects, performance benchmarking, improved community by-in and support for tourism stakeholders, enhanced visitors experience, increased bottom line/cost savings, and increased value per visitor. In order to tackle social, cultural, economic and environmental challenges, destinations have to be able to measure and benchmark their sustainability performances. In such a way, local authorities will be able to get improved data for informed policy decision making, establish an intelligent approach to tourism planning, identify areas that need improvement, prioritize action projects, manage risks effectively and create benchmarks of performance (European Union DG Enterprise and Industry 2013a).

Global Sustainable Tourism Criteria for destinations has been designed to guide destination specialists, managers, communities, and businesses towards the steps that are needed to sustain the natural and cultural attractions that draw-in tourists, while economically benefiting the local community and businesses (Global Sustainable Tourism Council 2013). Various tools have been developed to enable destinations monitor, manage, measure and improve their sustainability performance (i.e. European Tourism Indicators System (ETIS): for Sustainable Management at Destination Level (European Union DG Enterprise and Industry 2013b), UNWTO concept of the Global Observatory of Sustainable Tourism (GOST) based on the UNWTO methodology for sustainable tourism indicators etc.).

3 Empirical Analysis: Case Study

Authors will discuss the findings based on testing various possible tourism scenarios on the total revenue generated from tourism for a 7-year projection period. The case study destination used for scenario modelling is Labin-Rabac.

Labin-Rabac is a tourist destination on the Easter side of Istrian peninsula. It is the biggest destination in Istrian County geographically positioned on the Eastern side of the peninsula. Destination can accommodate approximately 12,000 tourists in a day. In 2013 destination was visited by 206,618 tourists and it realized 1,333,083 overnights (Labin-Rabac Tourist Board 2014). It is a destination where there is still space for further development bearing in mind the physical planning and destination's carrying capacity. Tourism is a vital sector for economic development of this destination. It is the third sector in terms of the total revenue generation and the second biggest sector based on the total asset value for year 2010 (Financial Agency Data).

3.1 Approach and Methodology

Objective of the research was to investigate the impact cautious destination planning and development can have on the total turnover in the hospitality sector as well total economic development and to draw conclusions as to how tourism and sustainability can reinforce each other.

Main hypothesis: Increase in total turnover in hospitality sector will bring substantial benefits to the regional economy but it is highly dependent on cautious destination planning and destination's carrying capacity.

To achieve the main objective an empirical research was conducted and the data was interpreted. The starting point for this research was the analysis of financial results of hospitality sector for a 4-year period, in particular total turnover generated from all of the businesses companies operating in the sector. Lodging companies, food service and travel agencies with headquarters in Labin-Rabac were included in the analysis along with private accommodation providers—owners of private apartments, private rooms and villas. Financial data for companies that are required to report on their financial results were collected from Financial Agency (FINA).[1] The data for private accommodation providers were estimated on the basis of private accommodation average rental price in Croatia. Summary financial data of all business companies from the sector that have headquarters in destination Labin-Rabac was included. All of the data used for the purpose of scenario analysis was secondary data obtained from Financial Agency, City of Labin, Rabac-Labin Tourist Board, Institute for Tourism of the Republic of Croatia and Croatian National Bank. The forecasts are based on three broad types of growth drivers. The first one refers to season extension outside the traditional July and August months. The second one refers to the growth of accommodation capacity (number of bed places)[2] and the third one refers to the growth in the average daily tourists' spending. All of the developed scenarios have been taking into account the sustainable development of destination.

The methodology used for the purpose of scenario analysis: historical method, deductive method, analysis (particularly horizontal analysis of the income statement which provided information about tendencies and change dynamics on its positions), synthesis, and mathematical methods and feasibility study was conducted. The following mathematical formulas were used:

1. for calculation of average annual growth rate (custom formula for annual interest):

$$p = \sqrt[n]{\frac{X_n}{X_0}} - 1 \qquad (1)$$

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[1] According to Croatian Accounting low, this are all companies that are profit tax payers (Accounting low, Official gazette 109/07, article 20.

[2] Based on physical plan of the region and the city.

2. for value on the end of time period (costume formula for money value at the end of time period):

$$X_n = X_0 \times (1 + p)^n \qquad (2)$$

where:

p is the average annual growth rate
n is the number of time periods
X_n is value at the end of period
X_0 is value at the beginning of period.

3. for calculation of average occupancy of accommodations:

$$\text{Average accupancy} = \frac{\text{Number of overnights}}{\text{Capacity} \times 365(\text{bed days})} \times 100 \qquad (3)$$

3.2   Research Results and Discussion

Tourism is of great significance for the area of Labin and Rabac. Arguments for that are grounded in financial performances of the sector and the data was collected from the Croatian Financial Agency in 2013. Tourism was the third largest sector of the economy (measured by total turnover) in the period from 2008 till 2010, fourth sector in 2011. If measured by total assets, tourism was the second largest sector of the economy in the period from 2008 till 2010 and third in 2011. Tourism companies with their headquarters in Labin-Rabac make around 10.5 % of the total economy output, and approximately 23.5 % of all assets. In the analysed period (2008–2011), tourism companies were profitable with optimum liquidity (liquidity was not optimal only in 2011, but it was satisfactory).

Starting point for this research was total turnover of companies in tourism sector with headquarters in Labin-Rabac along with total turnover of private accommodation providers. Total turnover for tourism companies is shown in Table 1. For the easier understanding, kunas were calculated into Euros based on the exchange rate of 1 Euro for 7.23 HRK.

Total turnover of private accommodation providers was estimated. Estimation was performed using data on average daily rent of an apartment and realized overnights in private accommodation. Average daily rate during summer 2010 was 20 euros, or equivalent of 144.58 kunas.[3] 220,748 overnights were realized in Labin-Rabac in 2010. Multiplied by the average daily rent of an apartment one gets the total income of private accommodation providers. In 2010 the income equalled to 31.92 million kunas or 4.4 millions of EUR.

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[3] According to average exchange rate of Croatian National Bank from June to August 2010, 1 EUR = 7.229009 KUN, Calculation according to: Godišnji i mjesečni prosjeci srednjih deviznih tečajeva HNB-a ([online] Available at: http://www.hnb.hr/tecajn/).

Table 1 Horizontal analysis of total turnover of the hospitality sector 2008–2011(million kunas and euros)

Position	2008	2009	Index 09/08	2010	Index 10/09	2011	Index 11/10
Total turnover (kunas)	228.90	232.38	1.015	236.11	1.016	117.12	0.496
Total turnover (Eur)	31.66	32.14		32.66		16.20	

Source Financial Agency (FINA 2013)
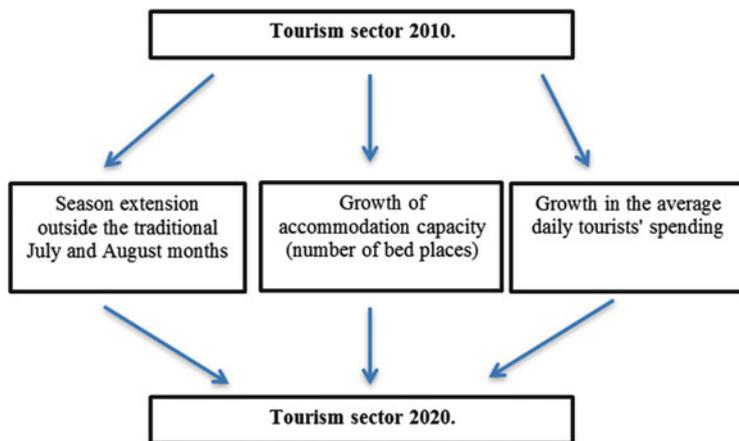
Fig. 1 Scenarios for tourism development on the Labin-Rabac destination for period from 2010 till 2020 (*Source* Authors' predictions)

Adding total turnover of private accommodation providers to the total turnover of companies from the sector one gets 268.03 million kunas (or 37.07 million of EUR) which was taken as a starting point for various scenario modelling.

The table above shows the trend of turnover movement. In the period from 2008 to 2010 total turnover was rising. In 2011 total turnover dropped down by more than half. The reason behind this huge drop is the merging of the largest tourism company from that area with another tourism company and the relocation of the main headquarters outside the destination. Due to this, its revenues were no longer included into analysis. For the same reason, the year 2010 was used as a starting point for the planning purposes.

For the purpose of scenario modelling authors have chosen three different scenarios. These are: season extension outside the traditional July and August months, growth of accommodation capacity (number of bed places) and growth in the average daily tourists' spending (Fig. 1).

First scenario refers to season extension outside the traditional July and August months. Duration of season is based on the average occupancy rate (in days). In

2012 the average occupancy rate was 112 days or 31 %. If the aim for 2020 would be to reach 146 days (or 40 % occupancy rate) this would mean an increase of 34 days or 33.5 %. This increase is projected based on the real expectations for the tourism growth in the next 6 years based on the predictions of United Nations World Tourism Organization, Croatian Tourism Institute predictions and regional and local development plans. The growth of average annual occupancy rate should be 3.35 %. Increasing the number of occupancy days will lead to the increase in total turnover of tourism. But, the total turnover growth cannot linearly follow the growth of occupancy rate for the point that majority of the growth in occupancy should happen in the off-peak season meaning lower daily rental prices for rooms and apartments (more than 50 %). This is why authors had chosen the 1.68 % rate for the modelling of annual growth of total turnover. If a destination decides to prolong its tourism season, the only possibility it has is the off-peak season months. Destination managers should envisage the positioning of destination whilst focusing on specific target market and its characteristics. Cooperative advertising, media and public relations activities should be performed on the target market (market niches). Raising awareness of the depth of tourism products and experiences is essential.

The second scenario is growth of accommodation capacity (number of bed places). For reaching this aim, it is important to raise industry and government awareness on the importance of further accommodation development in undeveloped areas. Citizens support is equally important. Currently, undeveloped areas cover approximately 70 hectares of land surrounding the City of Labin and Rabac. The underdeveloped area is highly attractive for new hotels and resorts (sport and family), small villas and various ecological camps (i.e. glamping). According to planned investments in additional accommodation capacity for the period up to 2020, Labin-Rabac will dispose of 14,930 (according to City of Labin). This represents an increase of 26.45 % compared to 11,807 beds in 2012. To achieve the planned occupancy of 146 days or 40 % in 2020, the number of realized overnights should be 2,179,780, what represents increase of 65.13 % in total or 6.47 % on average per year. In 2012 Labin-Rabac area realized 1,320,066 overnights. Increase in overnights due to growth of accommodation capacity and achieving an occupancy rate of 40 % or 146 days would have positive influence on total turnover of tourism companies. Since additional days of occupancy are planned for off-peak months, total turnover will increase for half lower rate of yearly increase due to increase in the number of overnights, which would be 3.24 % (6.47/2). Authors conducted a feasibility study to explore in more depth the possibilities and the profitability of such investment. Private-public partnership is the best option for gaining optimum profitability of investments in tourism with the base of increasing bed capacity for no more than 3,000 beds in the coming period (till 2020) having in mind the standards in hospitality industry with employment index of 0.13–0.17 employees per bed, financial and information flows in tourism.

The third scenario is growth in average daily tourists' expenditure. In 2010 the average daily tourists' expenditure in Istria was 67 Eur (Institute for Tourism of The Republic of Croatia 2012). In 2007, it was 60 Eur (Institute for Tourism of the

Table 2 Assessment of total revenue of tourism in Labin-Rabac destination for period from 2010 till 2020 (million kunas and euros)

	2010	Average annual growth rate (%)	2020	Total growth compared to base year 2010 (%)
Scenario I	268.03 million kunas 37.07 million Eur	1.68	316.62 million kunas 43.79 million Eur	+18
Scenario II		3.24	368.69 million kunas 50.99 million Eur	+38
Scenario III		3.75	387.32 million kunas 53.57 million Eur	+45

Source Authors' calculation

Republic of Croatia 2008). Accordingly, between 2007 and 2010 an average daily tourists' expenditure increased for 11.67 % in total, or 3.75 % per year. Growth of average daily tourists' expenditure will lead to increase in total revenues from tourism. For the purpose of this research we assumed that growth of average daily tourists' expenditure in destination Labin-Rabac will be the same as for Istria in the above mentioned period. However, in order to increase the daily expenditure, destination managers need to plan how to increase the overall quality and how to enrich the traditional offer in the destination. These are important requirements and without focusing on them it will be difficult to make the expenditure higher. Tourists need to have incentives for spending more. These incentives call for actions on creation of new products, investments in quality particularly in restaurants offer and supporting services.

Assessment of financial aspects of tourism development in destination Labin-Rabac was performed on the basis of different scenarios of realized overnights increase. An increase of overnights will consequently lead to the rise in total turnover in the hospitality sector, assuming retention of the existing price. The above explained scenarios are presented in the Table 2 and Fig. 2 that follow.

In line with the scenario 1, the total turnover supported by the hospitality sector could reach 316.62 million kunas/43.79 million Eur. According to scenario 2, the total turnover supported by the hospitality sector, could reach 368.69 million kunas/ 50.99 million Eur. And finally, according to scenario 3, the total turnover supported by the hospitality sector, could reach 387.32 million kunas/53.57 million Eur.

Although hard to exactly define, tourism leaves its traces to the whole economy, and it is particularly important for the development of the local economy of the tourism destination. According to Ernst and Young (2013) for every 1 euros spent by the sector, an additional 1.12 euros is spent in the supply chain and via employees' consumption (i.e. the 'direct' plus the 'indirect' and 'induced' effects). If we presume the multiplier effect and base our predictions on the above three scenarios, total impact from the hospitality sector (included direct, indirect and induced contribution) would reach 92.8 million Eur (scenario 1), 108.09 million Eur (scenario 2) and 113.56 million Eur (scenario 3). Equally, several hundreds of
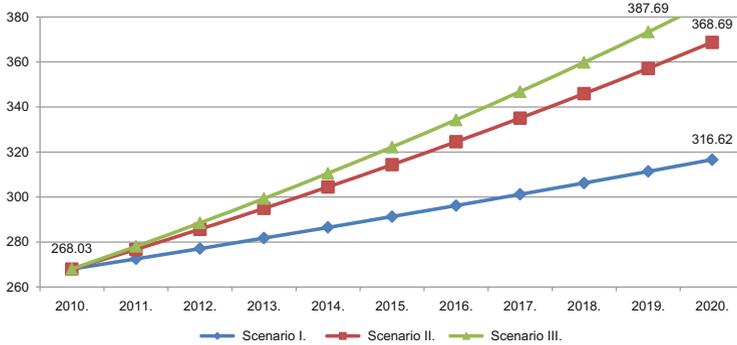
Fig. 2 Results of different scenarios for tourism development in Labin-Rabac destination for period from 2010 till 2020 (million kunas) (*Source* Authors' calculations)

new jobs could be generated based on the above presented scenarios, particularly with the application of the scenario no. 2—capacity growth. According to second scenario, which refers to growth in accommodation capacity, and employment index of 0.13–0.17 employees per bed, this will lead to new employments in the hospitality sector. Planned growth of accommodation capacity (number of beds) of 3.123 will lead to approximately 450 new working places (additional beds − 3.123 × employment index 0.13–0.17). According to the Croatian National Statistic Office, destination Labin-Rabac registered 695 unemployed persons in 2013. New job positions, as a result of the growth in accommodation capacity, will largely solve the problem of unemployment in this destination. The three developed scenarios and the multiplier calculations proved the defined hypothesis. The scenarios clearly show the correlation between planning for growth in relations to destination's carrying capacity and possibilities of further improvements in products and services. Destination does not compete itself, but service providers compete as well. This is why all of them have to be included in planning and development.

4   Conclusion

It is necessary to plan the development of sustainable tourism in the destination Labin-Rabac. Destination Labin-Rabac has still not developed its image. There is a necessity to convey a positive image of destination, which is achievable through destination branding. Decision makers are aware of the fact that tourism is one of the sectors with highest developmental potential. With their support and with the realization of planned projects and activities, the potential of sustainable tourism development in this destination is unavoidable. With the selection of proper strategies, main objectives such as growing visitors economy, improved livelihoods, better environment, reduced carbon and authenticity of the destination can be

reached. Tourism destinations have their own culture, customs, environment, laws and regulations and this makes their development strategies differ from one another. Strategies are dependent on the destination and its main goals, its comparative advantage and the resources it consists of. However, the favourable strategies may concentrate round four critical points—products and markers, infrastructure and investment and community and jobs. In the case of Labin and Rabac, the above mentioned projections and applied scenarios may be of use for selecting the proper strategy whilst trying to position the destination on the tourism market. Sound strategies should be based on the balance between benefits and costs of all of the stakeholders, including the surrounding environment. Economic-impact analysis is not sufficient to properly track all of the effects of tourism. Environmental impact assessment should be done accordingly to predict the impact of a project/ plan on the social, cultural, environmental system.

To satisfy the definition of sustainable tourism, destination Labin-Rabac must take an interdisciplinary, holistic and integrative approach which includes four main objectives: (Global Sustainable Tourism Council 2014a) to (1) demonstrate sustainable destination management; (2) maximize social and economic benefits for the host community and minimize negative impacts; (3) maximize benefits to communities, visitors and cultural heritage and minimize impacts; and (4) maximize benefits to the environment and minimize negative impacts.

In view of the challenges posed by sustainability, it should be necessary to design a "roadmap" for managing sustainability in tourism. It is important to include all of the stakeholders in the process of planning towards. Destination stewardship should be brought at the forefront of sustainable tourism development of the destination.

The empirical analysis has showed the strong influence tourism can have on the regional economy. Based on the cautious planning, selection of proper strategies and according to the best possible scenario, the total turnover effects of the hospitality sector can reach 113.56 million Eur. Respectively, around 450 new job positions can be opened with new investments and growth in accommodation capacity of a maximum of 3,123 new bed places.

When observing the results of this research, some restrictions must be highlighted. First of all, turnover data does not include crafts which are presumed to have very significant role in tourism industry of Labin-Rabac tourism destination. Secondly, scenarios were created on the basis of plans which realization is still questionable (i.e. new investments are to happen). Furthermore, tourism is an industry which strongly depends on economic, social and environmental situation on destinations' target markets (i.e. financial crisis, floods), and it is highly weather dependent. This will, for sure, have an influence on the achievement of planned overnights in the future. This opens up new ideas for further research on how the development of sustainable tourism can leave strong effects to the whole economy of Labin-Rabac tourism destination.

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Global Factors of World Development

Sergey lvanovich Krujilov

Abstract The article analyzes the reasons of the global social system restructuring. The main stages of the social institutions dynamics of the European world and historic projects of its modernization were studied. Negative structural changes that occurred in the process of civilizational confrontation of the Eastern theocratic and Western technocratic systems are noted. The basic restructuring principles of the European world and its impact on the global economic processes were analyzed.

Keywords European world • Restructuring • Integration • Technical development • Economy

1 Introduction

From a systemic point of view, a crisis is a sign of structural reorganization of the system. The current world economic crisis is not an exception. It is a consequence of major structural changes in the global social system. A change in the system structure, in turn, is the reaction of the system to external challenges.

Twentieth century was a complicated one for the European world. The confrontation between European elites led to world wars, in which tens of millions of Europeans were killed and considerable material welfare was destroyed. These wars delayed the development of European nations. The last confrontation of the superpowers of the European world, the Soviet Union and the United States gave birth to the "Cold War", the war of intelligence and incriminatory evidence, the war of terrorist activities and underground criminal economy. The consequence of that war was the slowdown of the European world scientific progress, enhanced development of the underdeveloped allies and as a result, the occurrence of a real threat to lose technical and social leadership. "Decline of the West" became a real social problem. The European world could overcome and adequately respond to external challenges. The current global restructuring of the European world is a true reason for the global economic and social crisis.

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2 European Civilizational Systems

To understand the essence of the current processes we will consider the dynamics of the European social systems. The general structure of civilization and its functions are determined by the nature of interaction of elites controlling basic social sub-systems. Since the primary function of any society is economic security and protection, the elites historically were the basic industrial and power elites. With the complexity of the society structure, information function, the social control function: collection and analysis of information, social monitoring, building the information society field are becoming increasingly important. Priestly elites traditionally exercised these functions. Today these functions are the main functions of the Vatican.

All these functions are complementary within a single social system, and are common for all social systems. Accordingly, the representatives of relevant elite groups are complementary. The dominant elitist group determines the specificity of a particular social system. Despite the simplicity of the model, it gives an insight into the basic social processes of the European world. Historically, there are three important European civilizational projects: Roman, Biblical and Technocratic.

The Roman project is a republican system dominated by power structures. Procurement and priest systems, as they should be in the army, were auxiliary systems. Power as the system core predetermined the policy of territorial colonial expansion of Rome, robbing the colonies and slavery of prisoners of war. Power domination ensuring the right of a strong one to live at the expense of a weak one was made into the system's principle. The overall structure of the system is a militarized civil society of free people. Fundamentally, the society management system had elite pagan model of "Olympus of Gods" sanctifying the power of the aristocratic elite and democratic relations within it. The result of the Roman project was the creation of a powerful European empire that flourished at the expense of colonial plundering.

Along with the development of society, the role of information management structures are increased. Therefore, the Roman project was inevitably replaced by the Biblical project that gave rise to the state systems with dominant theocratic priestly elites, servants of God on the Earth. Power took backseat. Religion has become a unifying factor. The church became the core of the Christian state. Its members controlled the whole society. The church as the state security system shaped the laws of society, provided ideological support, carried out a total social control, including control of information and social bases and education system. In this project, the army and craft structures were servicing subsystems.

At the heart of the Biblical management system are the relations of social domination (supremacy). On the basis of the Biblical model of "monotheism" or, which is the same of sole command, powerful hierarchical control structures were formed. Basic social structure in this model was a monarchical state. System Biblical principle of "right of the elected" provided power and "divine favor" to the cast of "the chosen people". The domination of the elected, their sacred right to

levy tribute on the population was maintained by force. This system is characterized by the policy of territorial expansion under the pretext of "bringing the lost sheep to the God". The more "herd", the more tribute, the higher the standard of living of the chosen people. Unlike Rome, subjugated nations converted to Christianity of ten were incorporated into the empire as subjects. The Christian systems where all are the slaves of God by their status, were characterized by the phenomenon of serfdom peasants. The result of the Biblical project was the development of large European Christian empires, such as the Austrian, British, Spanish or Russian. The same processes also were in the Muslim world.

The main vector of human evolution is the path of technological progress, the pass of artificial man-machine symbiosis. Technical systems provide unconditional dominance of a human in the environment. Therefore, technocratic elites play more important social role in the development of technology, and technical corporate structures determine the level of society's development. Today, the concepts of "developed country" and "technically developed country" have become synonymous. Modern wars have become mainly wars of economies. Technically undeveloped countries, even with more population and larger controlled territory, begin to lose to technically developed countries.

As far as clumsy hierarchical structures of Biblical totalitarian society did not contribute to scientific and technical progress, they had been gradually replaced by the bourgeois republics, which created conditions necessary for technological development. Nineteenth and twentieth centuries are the period of collapse of the Christian empires in the European world. Corporate industrial elites begin to play a dominant role in the national bourgeois republican systems. Technocratic project starts replacing the Biblical project. The basic model of a new project becomes the basic civil model of a free industrial city, the version of ancient free civil society, the society of democratic freedoms and liberal economy. This time is a period of scientific and industrial revolutions, which led to a sharp civilizational separation of the European world from the rest of the world and its global dominance. The dominant position of corporate structures begins to define a new vector of geopolitics—the economic territorial expansion, the struggle for spheres of influence, markets and sources of raw materials. The era of neo-colonialism, the era of economic exploitation of the underdeveloped nations began. Today the Technocratic project enters a new stage.

When changing systems, new elites do not fully eliminate the old ones. One part of the old elites withdraw, resisting the new reality, and the other part is transformed to the new conditions and creates kinship alliances with the new elites. An example is the symbiosis of aristocratic military and priestly elites of the Middle Ages, in the modern era it is the symbiosis of aristocratic and priestly elites with industrial elites. Modern European elites have the same mixed character.

The structure of any social system contains a dominant core headed by the leader. The Establishment of a new global system involves a development of such a core and identification of a new leader. Therefore, the formation of a new global system is characterized by intensification of the struggle with the elites of the previous systems, and aggravation of the intra- system struggle between the

countries for leadership in the new global system. Rome and all Christian European empires had to endure a fierce struggle. The same struggle for leadership unfolded in the Nineteenth to twentieth centuries among the developed European countries in the process of forming a new world system.

3   Unification Projects of the European World

The European world, despite internal contradictions of regional elites, have always been treated as a single super-system, which unity is based on the biological, cultural and technical community. Modern European history had several attempts to form a single European system. Every such attempt had been made in the country, claiming the leadership role, with the participation of a significant part of the European elites. Representatives of other European elites opposed to leaders. In one country, one part of the elites supported the changes, and the other part opposed it. The European world had been in a transition state for a long time.

British aristocratic revolution became the transitional stage between the Biblical and Technocratic projects. The British elite has managed to create conditions for rapid technological development in the country by substituting absolute monarchy with aristocratic oligarchy and giving a part of civil rights to the bourgeoisie. Technical leadership allowed Britain to dominate the world over a 100 years, creating the largest colonial system. Britain maintained leadership in the European world until the Second World War.

Republican-technocratic projects opposed British Biblical and Technocratic project. French bourgeois revolution was the first international project of force integration of Europe under the Roman imperial model, headed by the Republican Emperor Napoleon. The Revolution had an anti-feudal character. It had contributed to the establishment of bourgeois relations, gave a powerful impetus to the development of capitalism in Europe, and was the catalyst of the bourgeois revolutions in other European countries. The French revolution was crushed by the combined monarchies of Europe. British Empire succeeded to maintain its leadership in the European world for 100 years.

Russian socialist revolution is an international project of uniting Europe under the Republican technocratic model of manufacturers' dictatorship, the "dictatorship of the workers and peasants", under the principles of a new European social-democratic ideology that created conditions for an intensive technical development. Lenin was the top-manager of the project in Russia. The technical development of Russia was implemented in a short time with the help of the USA and some the European countries. Russian project could not be implemented for internal reasons. State counter coup of "Stalinist" team actually led to the restoration in the country of Biblical models of monarchy state based on theocratic party system and opposition of the new "Eurasian" communist elites of the country to a significant part of the European technocratic elites of the Western world.

German national socialist revolution is an international technocratic project of force uniting Europe under the Roman imperial republican model of the "Third Reich", with Hitler as a leader. As in Russia, reindustrialization of the country, which allowed Germany to unite most of the European countries by force, was implemented in a short term with the help of the developed countries. The Revolution was crushed by the unified forces of Russia, UK and USA. Although the project was never implemented, as a result of this confrontation, Britain lost its colonies and a leading position in the European world, giving leadership to the USA.

The American bourgeois revolution is an international technocratic project of unification of the European world within the Roman imperial republican model. Creating preconditions for social and technological development, the USA gradually became a technical and economic leader, the first in the Western European world, and then in the entire European world. Under this system, a project of European unification was implemented peacefully. Today the development of a new European empire goes into its final stage.

4   Confrontation of Civilizational Systems

Last civilizational confrontation between two systems, the communist Biblical and Western Technocratic, after the Second World War in terms of nuclear deterrence made it impossible to start armed conflicts. The main way to counter systems was the "Cold War", the war of intelligence. Both systems used similar methods. There were intensive information wars. The main emphasis was made on the recruitment of agents of influence. Incriminatory evidence was the main method of recruitment. Therefore, there was a growing level of corruption in the control structures, bribery and blackmail became conventional means. To eliminate competing structures, totalitarian and terrorist groups were created and maintained in the third world countries. Shady criminal feeds were widely used for the delivery of weapons and drugs into different parts of the world. Drug trafficking as a means of financing criminal groups acquired large scale. Social impact of information services, intelligence and counter-intelligence was growing. In the struggle for spheres of influence, development programs of underdeveloped countries—allies were implemented. To finance illegal activities, uncontrolled offshore zones were created, which simultaneously conventional firms used for tax evasion. As a result, the share of shadow economy significantly increased. In such circumstances, the criminalization of systems was inevitable. Under these rules of the game, not the most developed or strong won, and the most vile.

In the "Cold War" situation was not in favor of the West. Through an extensive communist network deployed legally in virtually all countries of the world, strong "fifth columns", funded by the Soviet Union to lobby its interests were created. Thanks to them, the Soviet Union had access to virtually all the technical secrets of the West. The only problem was that the Soviet system, built on the best Biblical

models, did not create the necessary preconditions for the emergence of skilled technicians. In the acute shortage of technicians and backward technological base, alienate projects were difficult to implement in the country on their own. Technological gap became palpable. Therefore, the need to eliminate opposition was understood in the Soviet Union as well. However, attempts to reduce the level of confrontation taken under Khrushchev and Gorbachev were suppressed. Ultimately, not without the domestic assistance, the socialist camp collapsed. Most of the countries of this camp were integrated into the European Union. Influence of the communist systems in the world has declined significantly. Today last relapses of its opposition to the European world can be observed.

After the collapse of the socialist camp, the American project defines the essence of global processes in the European world. European world has actually become single and unipolar. The core of the new world was formed and its leader was defined. The threat of another world war was reduced dramatically. Opportunity for structural reforms in the European world appeared.

5 Outlines of the New European System

The main task of the Technocratic project, defining the contemporary changes in the European world, is to create conditions for the intensification of technical development as a prerequisite for the maintenance of global leadership.

As far as the internal human freedom is the most important prerequisite for technological development, the increasing role is played by propaganda of free civil society models, as the prerequisite for the people with such a consciousness. Open struggle with Biblical totalitarian models worldwide began.

The European world dismantles and restructures Biblical systems at the quick pace. The Catholic Church is actively involved in the process of European restructuring. Today we are witnessing the most radical reforms in the Catholic Church, the most important institution of the European social monitoring. Personnel changes at the top level were made to conduct reforms. Elimination of compromised bishops, rejection of ostentation, establishing tight fiscal control over the use of church funds began. The reformed church became one of the most effective control institutions of the remaining systems of Biblical project. Today it makes an effort to eliminate the contradictions between science and religion and facilitates the spirit of freedom in the European education system controlled by it. The role of other systems of Biblical project has been steadily declining in the European world. In recent years, the role of the international Jewish control system has been reduced. Active opposition to Muslim competing systems began to take place. Along with this, the role of traditional European pagan systems is increasing.

Clearing debris of the "Cold War" began. Technical corporations do not need incriminatory evidence. They do not need spies and terrorists. They need qualified professionals. Undercover communist and terrorist networks like al-Qaeda created during the "Cold War", now are no longer needed. Moreover, left to themselves,

acting on habitual criminal models, they pose a threat to the new European world. Therefore, the fight against terrorism and the shadow economy, a breeding ground for terrorism, has become one of the most important tasks of the new system. Safety of the new system is impossible without reliable global control over the proliferation of weapons of mass destruction and conventional weapons. And this control is carried out by tough means today. Access to the club of nuclear countries is closed today.

Representatives of the new technocratic elite established effective means of a technical intelligence and social monitoring. Intensive development of computer technology has led to the creation of fundamentally new systems of a social control. Electronic payment systems today largely allow control over financial and material flows, which significantly hampers the activity of "shadow" and criminal organizations. In the future, a complete rejection of the traditional paper money will dramatically reduce the level of crime and the shadow economy and significantly reduce the level of corruption in the European world. Financial control is impossible without control over shady offshore financial centers. Today, the majority of offshore zones are under international control. For the prevention of crimes, more effective means of video recording, identification of the personality, "lie detectors" and monitoring systems locations of people are developed. With super-power computers and storage facilities of colossal amounts of information, one can now collect in global information network almost complete information on the activities of individuals and organizations. The new world is becoming more controlled. In such circumstances, activity espionage and terrorist networks becomes increasingly inefficient. Accordingly, the social role of traditional undercover intelligence, working on blackmail is reduced.

Technical development allows abandoning the policy of territorial expansion. Renunciation of territorial annexations is the norm of the modern European politics. The developed countries today send the expansion vector into space. Important task of space exploration today is the basic factor of social and technological development. Space technology will open access to space resources, as well as allow creating materials and substances in the new conditions that are impossible to create on the Earth.

Another new factor of social development is biotechnology and genetic engineering. Today it allows changing significantly the direction of human evolution. The main direction of improvement is determined by the task of technological development. The human society has always had a few people capable of technical innovation. Therefore, today there are intensive works on the program of creation of the "superman", the artificial development of people, genetically having high potential for technological creativity. Genetic engineering with the new education system will provide rapid acceleration of scientific and technical progress.

Development of genetic identification leads to reformat of the European world on fundamentally new principles. The role of national states formed on the cultural and territorial basis is reduced. Every year, such factors of unification as common territory, religion, culture or language become less important. Moreover, all the more important become generic biological factors determined by human genes. The

European world of the future is a single space where national boundaries are of the same administrative nature as the borders of modern Russian regions. Representatives of the «global tribes», having the same genetic identification, will populate this space. A similar model can be illustrated on example of modern Russia, where, for example, Moscow and Kazan Tatars consider themselves as one nation. The only difference is in the method of identification. In the long term, cultural associations will inevitably give way to genetic associations. Since own specific biochemical processes characterize each biological group, there may not be equally useful food or equally effective drugs for all groups. It is obvious that the genetic type imposes certain restrictions on the choice of sexual partners when forming a family. Therefore, the collapse of modern cultural and ethnic groups, including, as a rule, several genetic groups is inevitable in the future.

Global social changes make impact on the nature of economic relations. Since the modern European world is built on a technocratic model, the exfoliation of regions of the world in terms of industrial development is inevitable. International cooperation is more profitable for the developed regions than internal cooperation. Industrial heterogeneity imposed on the ethnic heterogeneity even today leads to increased growth of separatism. An increasing number of European regions claim on their desire to get the sovereignty. Today, no one in the world is fundamentally protesting against the possibility of self-determination of Venice, Catalonia, Scotland or Quebec. Because even after receipt of sovereignty, they will still remain an integral part of the single European world and save all the economic, technical, cultural and family ties.

To maintain global technical advantages, the European world need to become a reasonable technical and economic self-sufficiency. In this regard, the degree of economic integration of the European world in a single European market is increasing and their aid to other countries is being reduced. Today, only Russia and Belarus are not formally included into the European economic system. Currently, the coverage of integration is growing. There are active negotiations between the USA and the EU on economic integration within the single "Atlantic market". Recently, a new core of the European financial system was created. In October 2013, six central banks of the USA, Canada, Britain, the EU, Switzerland and Japan signed an agreement on currency swap arrangements, which creates a system of solid mutual obligations with regard to the currency exchange rate (Rakesh and Muneesh 2014). As a result, the dollar ceased to be the world's sole reserve currency, and it is no longer necessary to bear the "burden of the world". The goals to bring back part of the manufacturing that was transferred to other countries become a priority.

The European world reduces its dependence on raw materials through intensive development of innovative energy technologies and energy consumption technologies. According to the U.S. plans, announced by President Bush in 2006 (Bush 2006), the country will reduce hydrocarbon exports by 75 % by 2025 due to innovations. The current new structure of the geopolitical system directly affects the economic policy of the European world. The level of economic planning and government regulation is further enhanced. The level of long-term planning is

increasing. Prospective scientific, technical and social programs are developed. Both the USA and the EU carry out a rigid quota output and prices control. Liberal market economy with its principles of self-regulation, private property and competition goes to ideology as a means to keep the spirit of freedom, entrepreneurship and initiative.

Eliminating global threat makes European countries face a serious problem of "excess population" (Krujilov 2014). Mobilization reserve of population is no longer needed either for the army or for the production. For this reason, the number of armed forces has been steadily declining in the European countries with their simultaneous technical strengthening. Currently the slogan of full employment is actually removed from the agenda. More unrestrained automation of productions inevitably leads to a reduction in the number of unskilled labor. This situation makes changes in the demographic and immigration policies in the direction of a gradual decline in the population and reduction of immigration quotas. Reduction of working hours could be a radical solution of this problem.

For the same reason, the principles of post-industrial consumer society are gradually abandoned (Smart 2010; Baudrillard 1998; Rorhmoser 1996). When a country begins to work on long-term promising programs in the conditions of optimum population, artificial stimulation of the economy by consumption becomes irrelevant. Guaranteed social order becomes the economic development incentive. Consumer as an incentive for development and new jobs is no longer needed. Moreover, it is even harmful as every slacker is harmful in the production system. Programs to reduce the number of "superfluous men" are already being implemented. The unipolar world has no more need to develop and procure the former allies who became unnecessary. As a consequence, there is a reduced level of aid to underdeveloped countries. Social benefits to the poor and unemployed are being reduced.

6 Conclusion

Social and economic transformations in the European world go at their full pace. Today, structural reforms are close to their completion. The European world is emerging from the crisis.

In the near future, we can expect the planned results of this process:

– Processes of scientific and technical development in European world will be accelerated. The European world becomes again industrial. The civilization separation of European world from underdeveloped countries will grow. Decrease in threat of the global conflicts gives the chance not to care of development of the former allies.
– Level of European world's integration will increase: from formation of the European Union to creation of new Atlantic trade alliance and new international

currency policy. Every year the European world will become more and more self-sufficient. Its global influence will grow.

– Implementation of perspective scientific and technical programs, such as the program of space exploration or the "immortality" program, will intensify scientific and technical progress sharply. New technologies reducing to 60 % dependence of the European world on export of hydrocarbons are created.
– The planned beginning in "physical" economy will amplify. The role of large corporations, locomotives of scientific and technical progress, will raise. The importance of speculative financial economy will steadily decrease.
– Strengthening of the planned beginning forces to refuse concepts of "consumer society" and "liberal economy" gradually.
– In the conditions of decrease in threat of the global conflicts, "the excess population" as a mobilization reserve becomes a social problem. Therefore, the developed countries will need to implement programs of gradual reduction of population.
– As social homogeneity is one of important prerequisites of society's stability, it is possible to predict gradual refusal of "multiculturalism" policy and transition to more tough immigration policy.

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Intra-market Linkages Among Civets Stock Markets: A New Frontier for Investments

Kashif Saleem and Sheraz Ahmed

Abstract This paper utilizes the multivariate GARCH framework of Engle and Kroner (1995) to examine the return and volatility spillovers among a new group of six frontier markets called 'CIVETS'. These markets are considered to be the future hosts of investments due to their huge potential and abundance of resources. The analysis of weekly stock market return series revealed that these markets have significant return and volatility spillovers among each other. These findings suggest that the portfolio investors who invest in emerging and frontier markets for better returns should take into account the correlation of risk and returns among CIVETS stock markets. The diversification benefits should be assessed keeping in view the extent of inter-market linkages of Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa.

Keywords GARCH-BEKK • Volatility spillovers • Contagion • CIVETS equity markets • Portfolio diversification

1 Introduction

In 2009, another block of fast-growing economies emerged to the scene as the future of investment horizon when Robert Ward of Economic Intelligence Unit coined the acronym "CIVETS" consisting Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa. Since then the CIVETS countries has attracted a lot of attention from investors especially in 2011 and this trend continued during the first half of 2012. The early mover advantage for investing in BRICs—Brazil, Russia, India and China which was present since the introduction of these emerging markets block seems to be mitigating over time because these big markets have faced the economic problems amid U.S. credit crunch. Hence the need for new emerging markets which possess the relatively higher diversification benefits is increasing. CIVETS have been tipped by some economic analysts to be the next group of fast-growing economies of the world. These countries are likely to deliver

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sustainable growth mainly due to a large portion of young populations (average population age of 27), likely to show fast-rising domestic consumption, and diverse economies meaning they should not be as heavily dependent on external demand as the BRICs.

Besides being a topic for global business discussion, CIVETS have also become a new arena for academic research with regards to financial linkages and stock market integration. There is plenty of academic research on the financial markets of individual CIVETS countries along with emerging markets of different regions of the world,[1] however, the research on inter-linkages of these markets in cross-market settings among CIVETS is almost non-existent. Recently, Korkmaz et al. (2012) have studied the return and volatility spillovers among CIVETS stock markets and found generally lower contemporaneous spillover effects among countries. They employed the Granger-Cheung-Ng-Hong causality tests for mean and variance of weekly stock market returns and seen rather weak evidence of inter- or intra-regional interdependencies effects. Only 10 of the possible 30 country pair-wise directional casual relationships were found to be statistically significant. There is no further study found on the intra-market linkages of these six economies.[2]

We utilize the multivariate GARCH framework of Engle and Kroner (1995) of time-varying volatility to determine the intra-market linkages of return and volatility among CIVETS markets. Both return and volatility linkages are tested in bi-variate setting where bi-directional relationship of return and time-varying volatility is analyzed. The diversity in the geographical location and other trade and economic factors among CIVETS countries implies no relationship among each other because there is no significant commonalities and trade among these countries. But since the introduction of the acronym "CIVETS" has been widely used in academic and investment circles around the world therefore the interest towards this block of frontier economies may have induced linkages among the stock markets due to generally high level of portfolio investments in these countries. Therefore, our contribution is primarily empirical in nature and thus provides first hand evidence on the economic relationship among six emerging markets which have full potential of being the future investment targets worldwide. We find that there are significant linkages among CIVETS stock markets during the time period of our analysis. However, the direction of relationship is asymmetric depending on the countries in the model.

The rest of the paper is organized as follows: next section describes the specifications of model used in the analysis with a review of earlier studies. Section 3 provides a detailed outlook of the data and its descriptive characteristics. In Sect. 4,

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[1] See for example, Abdul Karim et al. (2009), Aggarwal et al. (1999), Alagidede and Panagiotidis (2009), Alkulaib et al. (2009), Angelidis (2010), Baur and Fry (2009), Chancharoechai and Dibooglu (2006), Chang and Su (2010), Click and Plummer (2005), Edwards and Susmel (2001), Evans and McMillan (2009), Fernandez (2006), Gebka and Serwa (2007).

[2] A search made on http://www.repec.org with keyword "CIVETS" returned only two relevant studies (including Korkmaz et al. 2012) as of 10.09.2014.

we present and discuss the results of the empirical analysis, Sect. 5 outlines the diagnostic tests to verify the results and finally Sect. 6 concludes the paper.

2 Model Specification

The Autoregressive Conditional Heteroskedasticity (ARCH) process proposed by Engle (1982) and the generalised ARCH (GARCH) by Bollerslev (1986) are well known in volatility modelling of stock returns. In examining volatility linkages between countries, however, a multivariate GARCH approach is preferred over univariate settings. Unfortunately, such models can only be estimated by imposing specific restrictions on the conditional variance-covariance matrix (e.g. positive definiteness). The early model proposal of Bollerslev (1988)—ostensibly for checking the volatility linkage between countries—fails to assure the positive definiteness of the conditional variance matrix. Moreover, it does not allow cross-equation conditional variances and covariances to affect each other due to its oversimplifying restrictions. Most of these problems are avoided in the newer BEKK (Baba, Engle, Kraft and Kroner) parameterization proposed by Engle and Kroner (1995). Using quadratic forms to ensure positive definiteness, the BEKK model complies with the hypothesis of constant correlation and permits for volatility spillover across markets. There is a trade-off, however, between generality and increasing computational difficulty with higher dimensional systems.

   We start our empirical specification with a bivariate VAR-GARCH (1,1) model that accommodates each market's returns and the returns of other markets lagged one period.[3]

$$\begin{bmatrix} r_{1,t} \\ r_{2,t} \end{bmatrix} = \begin{bmatrix} a_{1,0} \\ a_{2,0} \end{bmatrix} + \begin{bmatrix} \beta_{1,1}\beta_{1,2} \\ \beta_{2,1}\beta 2 \end{bmatrix} \begin{bmatrix} r_{1,t-1} \\ r_{2,t-1} \end{bmatrix} + \begin{bmatrix} \mu_{1,t} \\ \mu_{2,t} \end{bmatrix} \tag{1}$$

$$u_t | \Omega_{t-1} \sim N(0, H_t), \tag{2}$$

Where rt is an $n \times 1$ vector of weekly returns at time t for each market. The $n \times 1$ vector of random errors μt represents the innovation for each market at time t with its corresponding $n \times n$ conditional variance-covariance matrix Ht. The market information available at time t−1 is represented by the information set Ωt−1. The $n \times 1$ vector, α, represents the constant. The own market mean spillovers and cross-market mean spillovers are measured by the estimates of matrix β elements, the parameters of the vector autoregressive term. This multivariate structure thus facilitates the measurement of the effects of innovations in the mean stock returns of one series on its own lagged returns and those of the lagged returns of other markets.

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[3] This model is based on the bivariate GARCH (1,1)-BEKK representation proposed by Engle and Kroner (1995).

Given the above expression, and following Engle and Kroner (1995), the conditional covariance matrix can be stated as:

$$H_t = \omega_0^{'}\omega_0 + \gamma_{11}^{'}\varepsilon_{t-1}\varepsilon_{t-1}^{'}\gamma_{11} + \delta_{11}^{'}H_{t-1}\delta_{11}, \tag{3}$$

where the parameter matrices for the variance equation are defined as w0, which is restricted to be lower triangular and two unrestricted matrices γ11 and δ11. Thus, the second moment can be represented by:

$$H_t = C_0^{'}C_0 + \begin{bmatrix} \gamma_{11} & \gamma_{12} \\ \gamma_{21} & \gamma_{22} \end{bmatrix}^{'} \begin{bmatrix} \varepsilon_{1,t-1}^2 & \varepsilon_{1,t-1},\varepsilon_{2,t-1} \\ \varepsilon_{1,t-1},\varepsilon_{2,t-1} & \varepsilon_{2,t-1}^2 \end{bmatrix} \begin{bmatrix} \gamma_{11} & \gamma_{12} \\ \gamma_{21} & \gamma_{22} \end{bmatrix}$$
$$+ \begin{bmatrix} \delta_{11} & \delta_{12} \\ \delta_{21} & \delta_{22} \end{bmatrix}^{'} H_{t-1} \begin{bmatrix} \delta_{11} & \delta_{12} \\ \delta_{21} & \delta_{22} \end{bmatrix}. \tag{4}$$

Following Engle and Kroner (1995) the above system can be estimated by the maximum likelihood estimation which can be optimised by using the Berndt, Hall, Hall and Hausman (BHHH) algorithm. From Eq. (4) we obtain the conditional log likelihood function L(θ) for a sample of T observations:

$$L(\theta) = \sum_{t=1}^{T} l_t(\theta), \tag{5}$$

$$l_t(\theta) = -\log 2\pi - 1/2\log|H_t(\theta)| - 1/2\varepsilon_t^{'}(\theta)H_t^{-1}(\theta)\varepsilon_t(\theta), \tag{6}$$

where θ denotes the vector of all the unknown parameters. Numerical maximisation of Eq. (4) yields the maximum likelihood estimates with asymptotic standard errors.

Finally, to test the null hypothesis that the model is correctly specified, or equivalently, that the noise terms, μt, are random, the Ljung-Box Q-statistic is used. It is assumed to be asymptotically distributed as χ^2 with (p−k) degrees of freedom, where k is the number of explanatory variables.

3 Data and Descriptive Statistics

The data comprise weekly price indices for the countries under investigation. More precisely, we use COLOMBIA IGBC INDEX for Colombia, IDX COMPOSITE index for Indonesia, HO CHI MIN VSE index for Vietnam, EGYPT EGX 30 for Egypt, and ISTANBUL SE NATIONAL 100 for Turkey and for South Africa we utilize FTSE/JSE ALL SHARE. The dataset starts from July 2001 and ends at December 2013, yielding 652 weekly observations in total for each series. All the data are retrieved from DataStream.

Table 1 Descriptive statistics

	Mean (%)	Std. dev. (%)	Skewness	Excess kurtosis	Normality (p-value)	ADF	ARCH-LM
Panel A: Summary statistics							
Colombia	20.50	25.19	−1.964	22.848	<0.001	<0.001	<0.001
Indonesia	18.34	26.24	−1.046	10.364	<0.001	<0.001	<0.001
Vietnam	0.22	31.60	−0.275	5.453	<0.001	<0.001	<0.001
Egypt	19.14	32.60	−0.666	5.910	<0.001	<0.001	<0.001
Turkey	14.39	33.03	−0.350	4.885	<0.001	<0.001	<0.001
South Africa	13.04	20.20	−0.298	5.672	<0.001	<0.001	<0.001

	Colombia	Indonesia	Vietnam	Egypt	Turkey	South Africa
Panel B: Pairwise correlations						
Colombia	1.000					
Indonesia	0.426	1.000				
Vietnam	0.143	0.227	1.000			
Egypt	0.304	0.413	0.196	1.000		
Turkey	0.373	0.432	0.186	0.340	1.000	
South Africa	0.427	0.522	0.168	0.313	0.438	1.000

Notes Panel A reports summary statistics of the logarithmic weekly returns of all six CIVETS stock markets. Panel B reports pairwise correlation coefficients among all markets returns. Sample period is from July 2001 to December 2013. The sample includes 652 weekly observations. Mean and standard deviation have been annualized. The p-value for the Jarque-Bera test statistic of the null hypothesis of normal distribution is provided in the table
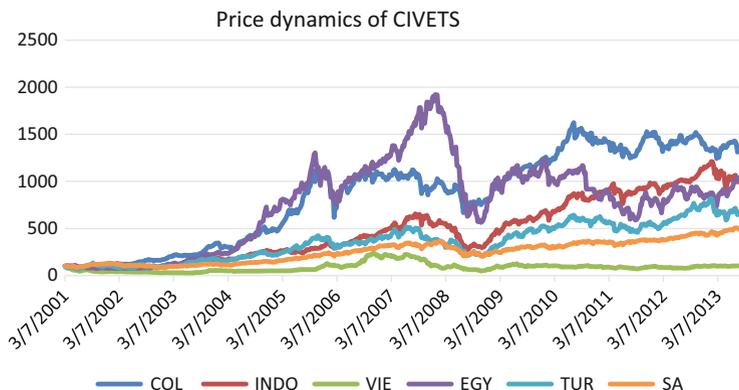
Fig. 1 Index values of CIVETS markets for the period July 2001–December 2013

Weekly returns are constructed as the first difference of logarithmic prices multiplied by 100. Table 1 presents a wide range of descriptive statistics for the seven series under investigation. As a first step, stationarity in the time series is checked by applying the Augmented Dickey Fuller (ADF) test. The results (Table 1) allow us to reject the null hypothesis that returns have unit root in favour of alternate hypothesis of stationarity (even at 1 % MacKinnon critical value). The development of equity market indices shown in Fig. 1 clearly exhibits non-stationarity.

The first two moments of the data, i.e., mean and standard deviation, are multiplied by 52 and the square root of 52 to show them in annual terms. As one would anticipate, most of the markets offer high returns, Colombia and Egypt seems to be the most favorite investments, offering 20 % and 19 % returns per annum respectively, Indonesia, Turkey and South Africa offer 18, 14 and 13 % respectively while Vietnam found as the least interesting market with an annualized market return of just 0.22 %. However, the high returns are associated with high risk (standard deviations) as well. All the markets under investigation found to be highly risky ranging from South Africa (lowest) at 20 % to Turkey (highest) at 33 % standard deviation. All the return series are, without exception, highly leptokurtic and exhibit strong negative skewness. This suggests the presence of asymmetric trends towards negative values. To check the null hypothesis of normal distribution, we calculated the Jarque-Bera test statistic and reject the null of normality in all cases.

Since we are using a GARCH process to model variance in asset returns, we also test for the presence of the ARCH effect. Table 1 reports values for the ARCH LM-statistic (five lags) on each returns series. The results show evidence of an autocorrelation pattern in both residuals and their squares. This suggests that GARCH parameterization could be appropriate for the conditional variance processes.

4   Empirical Results

Our empirical results answer the theoretical questions formulated in the previous sections. First, to examine the return and volatility transmission of CIVETS stock markets, 15 pair-wise models are estimated utilizing bivariate GARCH frame work, for which a BEKK representation is adopted (see, e.g., Engle and Kroner 1995).

Following set of pairs are used in the analysis to check the return volatility linkages among all CIVETS stock markets:

1. Colombia–Indonesia
2. Colombia–Vietnam
3. Colombia–Egypt
4. Colombia–Turkey
5. Colombia–South Africa
6. Indonesia–Vietnam
7. Indonesia–Egypt
8. Indonesia–Turkey
9. Indonesia–South Africa
10. Vietnam–Egypt
11. Vietnam–Turkey
12. Vietnam–South Africa
13. Egypt–Turkey
14. Egypt–South Africa
15. Turkey–South Africa

The results obtained from bi-variate GARCH (1,1) with BEKK specifications (Engle and Kroner 1995) are summarized in Tables 2, 3, and 4 below. We first look at matrix β in the mean equation, Eq. (1), captured by the parameters β_i and β_{ji}, in order to see the relationship in terms of returns across the countries and sectors in each pair. Parameters γij and γ_{ji}, captures cross-market ARCH effects and parameters δ_{ij} and δ_{ji} measure own and cross-market GARCH effects. LB and LB^2 presents the Ljung-Box Q-statistic for standardized and standardized squared residuals.

The results shown in Tables 2, 3, and 4 represent there is no generalized pattern in terms returns and volatility spillovers among all CIVETS markets. Some of the markets are more integrated with other markets than others. The direction of return and volatility transmission is also different for each country. Country specific analysis shows that Colombian market receives return spillovers from Indonesia, Egypt, Turkey and South Africa but does not transmit any significant return spillovers to other CIVETS markets. However in terms of the shock transmission (ARCH effect), Colombian markets spill positive shocks to Indonesia, Egypt, Turkey and South Africa and receives positive shock transmission from Vietnam. In case of volatility spillovers (GARCH effect) Colombian market is again significantly connected to all other markets in lieu if bi-directional volatility spillovers.

Table 2 Return and volatility spillovers estimated from a bivariate VAR (1)-GARCH (1,1)-BEKK model of weekly return indices

Panel A: VAR (1)-GARCH (1,1)-BEKK estimations

Parameters	Colombia–Indonesia		Colombia–Vietnam		Colombia–Egypt		Colombia–Turkey		Colombia–South Africa		Indonesia–Vietnam	
	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.
β_{ii}	0.048	0.293	0.059	0.152	0.035	0.422	0.095**	0.043	0.126**	0.011	−0.005	0.892
β_{ij}	−0.032	0.374	0.022	0.369	0.011	0.648	−0.032	0.123	−0.051	0.233	0.019	0.507
β_{ji}	0.124**	0.010	0.046	0.183	0.158***	0.007	0.083*	0.075	0.055*	0.071	0.014	0.664
β_{jj}	−0.043	0.308	0.175**	0.000	−0.010	0.783	−0.045	0.187	−0.058	0.162	0.183**	0.000
ω_{ii}	0.219	0.701	1.027***	0.000	0.236	0.428	1.111**	0.000	1.153**	0.000	1.309**	0.000
ω_{ij}	−0.770	0.437	0.586***	0.006	−2.681***	0.000	0.578***	0.005	0.385**	0.001	−0.085	0.760
ω_{jj}	1.998***	0.000	0.741***	0.000	0.000	1.000	0.543***	0.000	0.425**	0.000	0.976**	0.000
γ_{ii}	0.406**	0.000	0.388***	0.000	0.382***	0.000	0.515***	0.000	0.494**	0.000	0.338**	0.000
γ_{ij}	0.384***	0.000	0.050	0.387	0.423***	0.000	0.129***	0.010	0.078**	0.018	−0.019	0.683
γ_{ji}	−0.084	0.106	0.087***	0.008	−0.043	0.332	0.033	0.212	−0.025	0.695	0.047	0.250
γ_{jj}	0.166**	0.005	0.553***	0.000	0.234***	0.000	0.218***	0.000	0.280**	0.000	0.575**	0.000
δ_{ii}	0.762***	0.000	0.873***	0.000	0.780***	0.000	0.811**	0.000	0.819**	0.000	0.859**	0.000
δ_{ij}	−0.175**	0.000	−0.049	0.175	−0.277***	0.000	−0.075***	0.003	−0.050**	0.006	−0.013	0.760
δ_{ji}	0.293**	0.000	−0.053**	0.001	0.247***	0.000	−0.007	0.672	0.007	0.820	0.016	0.513
δ_{jj}	0.712***	0.000	0.834***	0.000	0.710***	0.000	0.966**	0.000	0.944**	0.000	0.814**	0.000
Panel B: Diagnostic tests												
LB_i	24.515	0.432	21.283	0.622	24.653	0.425	22.159	0.570	20.175	0.687	26.715	0.318
LB_j	34.224*	0.081	22.949	0.523	38.339***	0.032	38.792*	0.029	24.781	0.418	23.571	0.486
LB^2_i	24.762	0.419	19.239	0.739	24.270	0.446	24.058	0.458	21.907	0.585	19.608	0.719
LB^2_j	42.450**	0.011	21.861	0.588	31.612	0.137	17.338	0.834	30.337	0.174	21.248	0.624

Notes The parameter β represents the return spillovers. The parameter matrices for the variance equation are defined as ω, which is restricted to be lower triangular and two unrestricted matrices γ, captures own and cross-market ARCH effects and δ measure own and cross-market GARCH effects. LB and LB^2 presents the Ljung-Box Q-statistic for standardized and standardized squared residuals
*Significance level at 10 %
**Significance level at 5 %

Table 3 Return and volatility spillovers estimated from a bivariate VAR (1)-GARCH (1,1)-BEKK model of weekly return indices

Panel A: VAR (1)-GARCH (1,1)-BEKK estimations

Parameters	Indonesia–Egypt		Indonesia–Turkey		Indonesia–South Africa		Egypt–Vietnam		Egypt–Turkey		Egypt–South Africa	
	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.
β_{ii}	−0.022	0.609	−0.015	0.741	0.004	0.926	−0.016	0.694	−0.030	0.431	0.032	0.414
β_{ij}	0.051*	0.095	0.063**	0.032	0.136**	0.008	−0.013	0.744	0.124**	0.001	0.249**	0.000
β_{ji}	0.100*	0.082	0.007	0.887	0.002	0.943	0.004	0.880	−0.066*	0.069	0.013	0.561
β_{jj}	0.011	0.793	0.010	0.819	−0.054	0.215	0.185**	0.000	0.027	0.492	−0.064	0.107
ω_{ii}	1.324**	0.000	1.217**	0.000	1.187**	0.000	1.986**	0.003	0.743	0.410	1.193**	0.003
ω_{ij}	0.387	0.260	1.167**	0.000	0.679**	0.000	−0.884**	0.000	−1.092	0.153	0.380**	0.040
ω_{jj}	1.354**	0.000	0.381**	0.000	0.206**	0.013	0.000	1.000	0.003	1.000	0.615**	0.000
γ_{ii}	0.386**	0.000	0.417**	0.000	0.249**	0.000	0.214**	0.000	0.145**	0.000	0.217**	0.000
γ_{ij}	0.086	0.355	0.150*	0.056	0.022	0.478	−0.074**	0.040	−0.223**	0.000	0.016	0.604
γ_{ji}	0.070*	0.075	0.018	0.764	0.383**	0.000	−0.004	0.956	0.244**	0.000	0.365**	0.000
γ_{jj}	0.269**	0.000	0.202**	0.000	0.401**	0.000	0.615**	0.000	0.295**	0.000	0.400**	0.000
δ_{ii}	0.835**	0.000	0.855**	0.000	0.851**	0.000	0.855**	0.000	0.978**	0.000	0.923**	0.000
δ_{ij}	−0.014	0.853	−0.113**	0.002	−0.086**	0.000	0.104**	0.011	0.483**	0.000	−0.004	0.846
δ_{ji}	−0.014	0.673	−0.019	0.421	−0.077**	0.000	0.070	0.322	−0.427**	0.000	−0.170**	0.001
δ_{jj}	0.904**	0.000	0.954**	0.000	0.926**	0.000	0.778**	0.000	0.642**	0.000	0.878**	0.000

Panel B: Diagnostic tests

Parameters	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.
LB_i	24.379	0.440	25.377	0.386	24.379	0.440	39.802	0.022	37.277	0.041	35.799*	0.057
LB_j	35.082*	0.067	38.289*	0.032	35.082*	0.067	24.160	0.453	37.414*	0.040	25.517	0.378
LB^2_i	15.259	0.913	16.328	0.876	15.259	0.913	24.206	0.450	11.769	0.982	9.456	0.996
LB^2_j	7.304	1.000	18.313	0.788	7.304	1.000	23.076	0.515	21.805	0.591	25.855	0.361

Notes The parameter β represents the return spillovers. The parameter matrices for the variance equation are defined as ω, which is restricted to be lower triangular and two unrestricted matrices γ, captures own and cross-market ARCH effects and δ measure own and cross-market GARCH effects. LB and LB^2 presents the Ljung-Box Q-statistic for standardized and standardized squared residuals

*Significance level at 10 %

**Significance level at 5 %

Table 4 Return and volatility spillovers estimated from a bivariate VAR (1)-GARCH (1,1)-BEKK model of weekly return indices

Panel A: GARCH (1,1)-BEKK estimations						
	Turkey–South Africa		Vietnam–South Africa		Vietnam–Turkey	
Parameters	Coeff.	Signif.	Coeff.	Signif.	Coeff.	Signif.
β_{ii}	0.198**	0.000	0.198**	0.000	0.195**	0.000
β_{ij}	−0.053	0.227	−0.053	0.227	0.044**	0.046
β_{ji}	0.036	0.110	0.036	0.110	0.056	0.132
β_{jj}	−0.063	0.120	−0.063	0.120	−0.041	0.237
ω_{ii}	0.614**	0.013	0.614**	0.013	0.762**	0.000
ω_{ij}	−0.267	0.587	−0.267	0.587	0.513	0.120
ω_{jj}	0.669**	0.000	0.669**	0.000	0.490*	0.084
γ_{ii}	0.490**	0.000	0.490**	0.000	0.552**	0.000
γ_{ij}	0.022	0.583	0.022	0.583	0.089**	0.050
γ_{ji}	−0.183*	0.063	−0.183*	0.063	0.054**	0.039
γ_{jj}	0.322**	0.000	0.322**	0.000	0.182**	0.000
δ_{ii}	0.868**	0.000	0.868**	0.000	0.839**	0.000
δ_{ij}	−0.005	0.855	−0.005	0.855	−0.042**	0.044
δ_{ji}	0.082	0.169	0.082	0.169	−0.020	0.166
δ_{jj}	0.908**	0.000	0.908**	0.000	0.970**	0.000
Panel B: Diagnostic tests						
LB_i	22.686	0.538	22.686	0.538	19.639	0.717
LB_j	25.623	0.373	25.623	0.373	38.635*	0.030
LB^2_i	21.539	0.607	21.539	0.607	22.394	0.556
LB^2_j	36.728	0.047	36.728	0.047	21.914	0.584

Notes The parameter β represents the return spillovers. The parameter matrices for the variance equation are defined as ω, which is restricted to be lower triangular and two unrestricted matrices γ, captures own and cross-market ARCH effects and δ measure own and cross-market GARCH effects. LB and LB^2 presents the Ljung-Box Q-statistic for standardized and standardized squared residuals
*Significance level at 10 %
**Significance level at 5 %

In case of Indonesian stock market, the returns and volatility spillovers are also significant with Colombia, Turkey, Egypt and South Africa. However, it neither transmits significant shocks to other markets nor receives shocks from others except Colombia. In case of volatility spillovers, Indonesian market shows a significant bi-directional relationship with only Colombia and South Africa. Vietnam seems to be the least integrated market among CIVETS. It mainly operates independent of the return and volatility spillovers from other markets within CIEVTS. Egypt seems to be more integrated with countries that have close trade ties with it i.e. Turkey and South Africa. Egyptian market sends positive return signals to Turkey but receives only negative spillovers. Similarly, Egyptian stock market sends and receives significant volatility spillovers to Turkey, South Africa and Colombia. Turkey is also important market in terms of the integration with CIVETS markets. The

analysis shows that Turkish stock market has significant bi-directional ties with Egypt and uni-directional ties with Colombia, Indonesia and South Africa.

South African stock market is also closely integrated within CIVETS sending and receiving return and volatility spillovers to mainly Indonesia, Colombia, Turkey and Egypt. The respective parameters of return (β), shocks (γ) and volatility (δ) clearly show that all these CIVETS markets are more or less connected with each other except Vietnam.

5   Diagnostic Tests

We also estimate the Ljung-Box Q-statistic used to test the null hypothesis that the model is correctly specified or equivalently that the noise terms are random. We calculate both standardized and standardized squared residuals up to lag 24 for each modelled pair. Results show (not reported) no series dependence in the squared standardized residuals indicating the appropriateness of the GARCH–BEKK model.

6   Summary and Conclusions

In this paper we have examined the return and volatility spillovers among a new group of six frontier markets called 'CIVETS'. We analyze the inter-market linkages in a more advanced setting. We use a Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models namely BEKK model (in a VAR-GARCH setting) of time-varying volatility to determine the inter-market linkages of return and volatility among CIVETS markets. Both return and volatility linkages are tested in bi-variate setting where bi-directional relationship of return and time-varying volatility is analyzed.

Our results showed that after controlling for world market impacts on thesis markets, there are still inter-market linkages among CIVETS stock markets. Although there is no evidence of mutually consistent spillovers over the period of time but the geographical proximity increases the chances of spillovers of returns and time-varying volatility in these markets. Geographical location and the stage of economic development of these markets seem to be important determinants of stock market linkages.

These findings suggest that the portfolio investors who invest in emerging and frontier markets for better returns should take into account the correlation of risk and returns among CIVETS stock markets. The diversification benefits should be assessed keeping in view the extent of inter-market linkages of Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa.

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Social Capital and Information Sharing: Impact on Firm Performance

Mausumi Saha and Sharmistha Banerjee

Abstract SMEs forge relationship with actors in their environment to obtain necessary resources, support and information which they may be unable to generate by themselves. These relationships are born out of linkages through formal and informal networks. Social capital of SMEs evolves out of these networks and generates scarce benefits. Literature provides that information sharing is widely regarded as one of the key returns of social capital which has a significant impact on firm performance (Wu 2008). Various dimensions of social capital in the form of network ties, trust and shared vision in strategic alliances and social alliances of SMEs have unique influences on information sharing among their exchange partners. This study attempts to examine the effects of the dimensions of social capital on information sharing advantages of the SMEs and its influence on firm performance, while drawing a comparison between firms engaged in strategic and social alliances. Analyzing the data from 100 small firms in West Bengal largely support the hypothesis that social capital contributes significantly towards information sharing, the effect of which is consequently translated into firm performance. The influence is found to be more pronounced for firms embedded in strategic alliances as compared to other firms.

Keywords Social capital • Information sharing • Strategic alliances • Social alliances • SMEs • Firm performance

1 Introduction

SMEs develop their linkages and relationships with other actors in their environment in order to obtain necessary resources, information and other moral support and the nature of these relationships are both formal and informal. Existing literature on networking and entrepreneurship reveals that networks enable

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entrepreneurs to gain access to resources that are necessary for them to achieve their aims. With the growing interest of networks in business world, how social capital, often conceptualized as a set of social resources that are embedded in networks, contributes to firm performance has attracted increasing scholarly attention in recent years (Arregle et al. 2007; Burt 2007; Leana and Pil 2006; Mauer and Ebers 2006; Moran 2005; Gronum et al. 2012). Wu (2008) found that the potential benefits of social capital are translated into improvement in firm performance through information sharing. Information has been widely regarded not only as one of the key benefits of social capital (Burt 1997; Coleman 1988; Uzzi 1997), but also as a significant antecedent of firm performance (Gulati 1998; Sandefur and Laumann 1998). SMEs are engaged in several types of networks in the form of strategic alliances (membership in formal networks in the form of business associations and industry/trade specific associations) and social alliances (family networks, social networks, informal networks, internal networks and other networks) which provide them with the benefits of information sharing.

The objective of this paper is to examine how the impact of social capital in the form of network ties, trust and shared vision is translated into firm performance through network derived information sharing benefits while drawing a comparison between firms embedded in strategic and social alliances. Our findings are based on a study of 100 SMEs in West Bengal of which 50 firms having membership in different associations is taken as the experimental group and another 50 firms not under the umbrella of any associations were selected as the control group.

In the following sections we will present a theoretical understanding of the concepts and dimensions of social capital, information sharing and impact of social capital on firm performance. We then move on to empirically investigate the relationship between the dimensions of social capital, information sharing and firm performance. Lastly, based on the findings, we will provide some theoretical implications for future research and practical implications for SMEs.

2 Theoretical Review

2.1 Social Capital: Definitions and Dimensions

Social capital is referred to as 'the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit' (Nahapiet and Ghoshal 1998). Adler and Kwon (2002) developed a conceptual model of social capital by differentiating its substance, sources, and effects. They defined social capital as the goodwill available to individuals or groups. Its source lies in the structure and content of the actor's social relations. Its effects flow from the information, influence, and solidarity that it makes available to the actor (Wu 2008). Nahapiet and Ghoshal (1998) categorized social capital into three interrelated dimensions: cognitive (shared

codes and language and shared narratives), relational (trust, norms, obligations, and identification) and structural (network ties, network configuration, and appropriate organization) for analytical purposes.

Network ties deal with the specific ways the actors are related. Ties are a fundamental aspect of social capital, because network ties create opportunities for social capital transactions (Adler and Kwon 2002). Trust is a necessary element in developing relationships and is considered both a catalyst that must be present before relationships move forward to solidify (Granovetter 1985), and an incrementally created outcome from successful transactions among individuals or organizations (Kandemir et al. 2006; Morrissey and Pittaway 2006). Behaviour that results from understanding the collectivity or power of solidarity enables mutual support. In other words shared vision develops when individuals agree upon common tactics or methods for achieving desired outcomes and are willing to invest in long-term relationships (Jarillo 1988; Jarillo and Ricart 1987). Small entrepreneurs accumulate these dimensions of social capital in networks that support their pursuit of growth opportunities (Antoldi et al. 2011).

2.2 Social Capital, Information Sharing and Firm Performance

Social capital is an important source for the creation of the inimitable value-generating resources that are inherent in a firm's network of relationships (Gulati et al. 2000; McEvily and Zaheer 1999). It allows people to benefit from knowledge accumulated by close contacts and associates (Hansen 1999; McEvily and Zaheer 1999; Uzzi and Lancaster 2003). With the growing importance of the role of business networks in enhancing a firm's competitive advantage, the social capital–performance relationship has emerged as a prominent research area of strategic management (Andersson et al. 2002; Koka and Prescott 2002; Kotabe et al. 2003; Uzzi and Gillespie 2002). However, the existing empirical results remain largely inconclusive, and range from a positive relationship (Andersson et al. 2002; Park and Luo 2001) to a negative relationship (Rowley et al. 2000).

Information is widely regarded not only as one of the key benefits of social capital (Adler and Kwon 2002; Burt 1997; Coleman 1988; Uzzi 1997), but also as a significant antecedent of firm performance (Gulati 1998; Sandefur and Laumann 1998). Uzzi (1997) found that social embeddedness allows firms to exchange fine-grained information. Burt (1997) argued that social capital enables brokering activities that bring information from other actors to the focal actors. Dyer and Chu (2003) argued that trust, a relational social capital, can lead to information sharing, which in turn creates value in the exchange relationship. Hansen (1999) demonstrated that weak ties facilitate cost-effective searching by product development teams for new information, and that strong ties facilitate the cost-effective transfer of complex information and tacit knowledge. Information sharing or

knowledge sharing was found to contribute positively to firm performance (Cummings 2004; Kulp et al. 2004). Kulp et al. (2004) found that sharing information on either inventory or customer needs is associated with higher manufacturer performance. Information sharing can better translate, in an atmosphere of reciprocity and cooperation, the benefits of social capital into concrete performance enhancement (Wu 2008). Social capital creates a mutual confidence that no party to an exchange will exploit the vulnerabilities of the other parties even if there is an opportunity to do so (Kale et al. 2000). Furthermore, social capital can enhance the focal firm's efficiency in searching for valuable information and screening information for managerial use (Zucker 1991). Social capital can not only provide access to information, but can also facilitate the cost-effective transfer of complex information and tacit knowledge (Hansen 1999; Uzzi 1997). Social capital such as trust can mitigate the information asymmetries that are inherent in inter-firm exchange by allowing the more open and honest sharing of information (Zaheer et al. 1998). Dyer and Chu (2003) proposed that trust, a relational social capital, can lead to information sharing, which in turn creates value in the exchange relationship. Wu (2008) suggest that information sharing plays a full mediating role in the relationships between trust and network ties and competitiveness improvement.

Review of past literature on social capital, information sharing and firm performance reveals that information sharing facilitated through networks can translate the benefits of social capital into concrete firm performance enhancement.

Figure 1 presents the conceptual model of social capital, information sharing and firm performance. We have used three commonly found dimension of social capital -network ties, trust and shared vision.
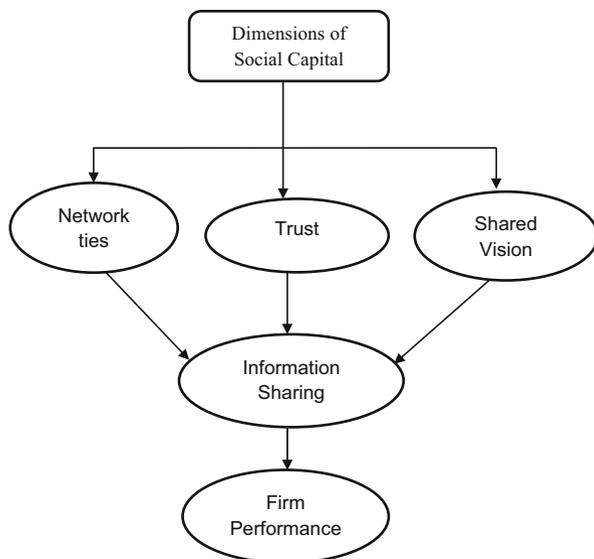

Fig. 1 Social capital, information sharing and firm performance: a conceptual model [*Source* Adapted from Wu (2008)]

3 Research Objective

The objective of this paper is to examine the impact of social capital through the dimensions of network ties, trust and shared vision on firm performance through information sharing and while drawing comparison among firms engaged in strategic and social alliances. The paper also attempts to find the direct effect of social capital on firm performance.

4 Methodology and Sample Profile

This study is based on a set of primary data collected using structured questionnaires. The questionnaire was formulated incorporating the issues culled from predominant theories advanced in social capital literature and a review of previous survey instruments. The questionnaire was piloted over a sample of 20 firms in order to ensure content validity and necessary changes made. Our sample constituted SMEs in West Bengal which are a driving force for the future industrial growth and employment generation of the state. The state also has a strong formal networking environment in the form of industry/trade associations and Chambers of Commerce. There also exists a culture of cooperation and support among the members of various networks. Data has been collected from 100 firms, taking 50 firms having membership in different associations as the experimental group. Another 50 firms not under the umbrella of any associations were selected as the control group. The sample of member firms was picked out using a random number table from the pooled population of members of five business associations. Using received wisdom these associations were selected from list of Industry Associations available from the Directorate of Micro and Small Scale Enterprises, Government of West Bengal. Two of them are general business associations [Bengal National Chamber of Commerce and Industries (BNCCI) and Federation of Small and Medium Industries (FOSMI)] and three are trade/industry specific associations (Computer Association of Eastern India (COMPASS), Bengal Hosiery Manufacturers Association (BHMA) and Electronic and Accessories Manufacturers Association (ELMA). Another 100 firms were randomly selected from a population of continuing small businesses (having filed Entrepreneurship Memorandum II with District Industries Centre as per the MSMED Act 2006) in the suburban and urban areas of West Bengal spread across different industries. A complete enumeration of all these 100 firms was done with one basic question—'are you a member of any formal business association?' 62 firms gave a negative reply. All of them were interviewed using structured questionnaire. After removing the outliers and gaps, 50 samples were used. Face to face interview was conducted with owners/managers of sample firms to gather their perception on various dimensions of social capital and its role in facilitating information sharing and firm performance. Demographic profile of the sample firms have been presented in Table 1.

Table 1 Demographic profile of sample firms

Demographic characteristics		Member firms		Non-member firms	
		No.	Age (%)	No.	Age (%)
Nature of activity	Manufacturing	36	72	26	52
	Service and trade	14	28	24	48
Form of business	Unincorporated	27	54	43	86
	Incorporated	23	46	7	14
Firm age	Below 15 years	10	20	31	62
	15–30 years	28	56	18	36
	Above 30 years	12	24	1	2
Firm size	Below 6 employees	3	6	13	26
	7–10 employees	10	20	25	50
	11–20 employees	21	42	10	20
	21–100 employees	16	32	2	4
Market segment	State	7	14	31	62
	National	43	86	19	38

Source Field survey (2012–2013)

5 Operationalization of the Research Objectives

In trying to investigate the possible relationship between social capital, information sharing and firm performance, tested measurement items were used for capturing social capital dimensions. New items were developed from the theoretical insights in the literature for measuring the information sharing benefits which may be facilitated by their social capital networks. The responses to each item were measured on a five point likert scale. To ensure the reliability of all the scales used, a Cronbach's alpha test was applied. They exhibited satisfactory alphas that were larger than the acceptable threshold of 0.60 (Nunnally 1978).

As a measure of social capital we have used the construct of 'network ties', 'trust' and 'shared vision'. A construct of 'information sharing' was used to measure the level of information sharing in the sample firms. Exploratory factor analysis was conducted to generate the score for latent variables. The criteria of KMO and Bartlett's test of sphericity were satisfied for all factors.

Network Ties On the basis of extant literature we inquired the sample firms in the survey about their strength of ties in various types of networks. To derive an indicator of strength of network tie, responses were taken on three items assessing perception of closeness, duration of relationship, and frequency of contact in each network. "How close are you with the members of the network?" (1 = very distant, 2 = distant, 3 = neutral, 4 = close, 5 = very close); "How many years have the relationships been in existence?" (1 = less than 1 year, 2 = 1–3 years, 3 = 4–6 years, 4 = 7–9 years, 5 = 10 or more years); "On average, how frequently do you communicate with the members of the network in relation to business?" (1 = once a year or less, 2 = 6 times a year, 3 = once a month, 4 = once a week, 5 = daily),

(Granovetter 1973; Perry-Smith 2006; Baer 2010; Gronum et al. 2012). Strength of tie in each network was measured as an average scoring of closeness, frequency and duration of contact in the network.

Exploratory factor analysis of network tie in all the networks taken together was conducted separately for member and non-member through firms Principal Component analysis and Varimax rotation. For member firms two factors having Eigen values greater than one were generated. The first factor comprises of tie in family networks, social networks, informal networks, internal networks and buyer-supplier networks. This factor is named 'Net_tie (social)'. The second factor is named 'Net_tie(strategic)' as it comprises of tie in industry/trade specific networks and formal business networks. For non-member firms, strategic ties in industry associations or business associations are inherently absent. For them only one factor [Net_tie (social)] was generated.

Trust Alongside network ties, the variable used to capture social capital is trust. Our survey instrument includes four items to measure the sample firms' perception of trust and cooperation in networks with two items pertaining to enforceable trust[1] and two items for generalised trust[2] (Portes and Sensenbrenner 1993; Miller et al. 2007). The responses were taken on a five point likert scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). Factor score generated for each respondent was as index of trust for further analysis. This variable is named 'Trust'.

Shared Vision Shared vision among network members has been measured using four items taken from Miller et al. (2007). The responses were taken on a five point likert scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree). Factor score generated for each respondent was as index of shared vision for further analysis. This variable is named 'Sh_vision'.

Information Sharing As a benefit of social capital generated through networks, information sharing is considered to be of paramount importance. Studies by Miller et al. (2007), Bennett and Ramsden (2007), Fuller-Love and Thomas (2004) among others have found information to be an important resource shared through networks. Wu (2008) perceived information sharing as a mediator between social capital and improvement in performance. We have developed an eight item measure for information sharing from the studies of Miller et al. (2007), Bennett and Ramsden (2007), Fuller-Love and Thomas (2004) and Wu (2008). The responses were taken on a five point likert scale. (1 = strongly disagree, 2 = disagree,

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[1] Trust arises out of the network's tacit and explicit standards of acceptable member to member behavior, surveillance of compliance with the standards, and sanctioning of members who deviate from trustworthy behavior (Farrell and Knight 2003; Gulati and Gargiulo 1999). Portes and Sensenbrenner (1993) call this enforceable trust.

[2] Farrell and Knight (2003) speak to the generalized form of trust whereby trust experienced with known individuals is extended to individuals with whom there has been no prior experiences if those individuals are somehow associated with those who are known and trusted.

3 = undecided, 4 = agree, 5 = strongly agree). Factor analysis (Principal Component Analysis) yielded a one factor solution for the eight items measuring information sharing. The factor score generated was used for further analysis. We named this variable 'Inf_sharing'.

As mentioned in the objective, the core focus of the paper is to explore the effect of social capital on information sharing and thereby on firm performance. We have used Firm Performance Index as a measure of firm performance.

Firm Performance Index Firm performance has been measured as an average of the following items:

Rate of capital growth =	{(Capital in 2011–2012 – Capital in 2009–2010)/Capital in 2009–2010} × 100
Rate of sales growth =	{(Sale in 2011–2012 – Sale in 2009–2010)/Sale in 2009–2010} × 100
Rate of profit growth =	{(Profit in 2011–2012 – Profit in 2011–2012)/Profit in 2009–2010} × 100

To compute capital growth, sales growth and profit growth the formula used by Premaratne (2002) has been adopted. As a measure of firm performance a Firm Performance Index (FPI) is computed as an average of Rate of Capital growth, Rate of Sales growth and Rate of Profit Growth.

The descriptive statistics of the variables have been presented in Table 2.

Firm types, form of business, size of business, age and market segment of the firm are used as control variables for the study. Literature on social capital, networking and firm performance often use information about firm type, form of business, firm size, firm age and market segment as control variables (McEvily and Zaheer 1999; Gronum et al. 2012; Ferreira et al. 2008). Firm related attributes like age and size of the firm can be considered as proxies for a firm's specific resources that may affect its performance (Wu 2008).

Table 2 Descriptive statistics and reliability analysis

Items	Member firm (N = 50)			Non-member firm (N = 50)		
	Mean	S.D.	α	Mean	S.D.	α
Net_tie(strategic)	3.47	0.975	0.947	–	–	–
Net_tie (social)	2.33	0.851	0.907	2.42	0.741	0.890
Trust	4.22	0.708	0.861	3.94	0.913	0.814
Sh_vision	3.26	0.529	0.850	2.84	0.817	0.833
FPI	0.22	0.163	0.931	0.12	0.076	0.935
Inf_Sharing	3.33	1.04	0.956	2.38	0.631	0.894
Firm age	24.26	12.67	–	14	6.47	–
Firm size	33.9	15.89	–	16.18	9.75	–

α Cronbach's alpha

6 Analysis and Results

The correlation matrix for the study variables are presented in Tables 3 and 4 for member and non-member firms respectively. To test the effect of social capital on information sharing, information sharing on firm performance and social capital and information sharing on firm performance we computed a series of multiple regression analysis using SPSS 17 software. Using stepwise method of regression analysis the most robust models were selected for member and non-member firms after controlling for firm related variables.

Correlation matrix for member firms (Table 3) shows that information sharing (Inf_sharing) is significantly correlated with all dimensions of social capital and the correlation is highest with strategic network ties [Net_tie(strategic)] and lowest with social network ties [Net_tie(social)].The reason may be that members firms preferably use their ties in strategic networks for sharing business information and trust and shared vision among the members effect information sharing among them. Interactions through membership associations also provide an impetus for sharing information among member firms. Firm performance index (FPI) is significantly correlated to all dimensions of social capital and Inf_sharing among member firms. Correlation between inf_sharing and FPI is higher compared to correlation between all social capital dimensions and FPI substantiating our view that benefits of social capital may be translated into firm performance through information sharing. Among the member firms, type of business (TYPE) is not significantly associated with Net_tie(strategic) and Net_tie(social) which indicates that manufacturing, service and trade firms have similar ties in their networks. Firm age (AGE) is also not associated with Net_tie(social) indicating that entrepreneurs' ties in social networks does not depend on the age of the firm.

Correlation matrix for non-member firms (Table 4) shows that all dimensions of social capital are significantly correlated to inf_sharing with trust having highest correlation. The reason may be that presence of trust among exchange partners facilitate information sharing in networks not guided by formal mechanisms. However, the correlations are quite low compared to that of member firms. This may be attributed to greater opportunity of sharing information among member firms facilitated by the social capital generated through the cooperative platform of the membership associations. Alike the member firms, among non-member firms also correlation between inf_sharing and FPI is higher compared to correlation between dimensions of social capital and FPI but all correlations are lower compared to that of member firms as non-member firms do not get access to information sharing benefits provided to the member firms by their membership associations. Lack of association between TYPE and two dimensions of social capital, Net_tie(social) and Sh_vision may be explained by the fact that irrespective of the type of business being manufacturing, service or trade, entrepreneurs of the non-member sampled firms maintain similar ties in their social networks and share similar shared vision. Alike the member firms, for non-member firms also AGE is not associated to net_tie(social) indicating that, entrepreneurs maintain their ties in social networks irrespective of firm age.

Table 3 Correlations for member firms

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Net_tie(Strategic)	1										
2. Net_tie(Social)	0.000	1									
3. Trust	0.428**	0.584**	1								
4. Sh_vision	0.605**	0.409**	0.339**	1							
5. Inf_Sharing	0.691**	0.425**	0.764**	0.547**	1						
6. FPI	0.403**	0.233**	0.473**	0.448**	0.729*	1					
7. TYPE	0.170	0.039	0.256**	0.194**	0.423**	0.412**	1				
8. FORM	0.287**	0.185**	0.305**	0.187**	0.466*	0.571**	0.123	1			
9. AGE	0.332**	0.169	0.398**	0.322**	0.373*	0.427**	0.181**	−0.117**	1		
10. SIZE	0.423**	0.342**	0.152**	0.392**	0.317**	0.546**	0.293**	0.458**	0.007	1	
11. MARKET	0.495**	0.339**	0.298**	0.486**	0.341**	0.315**	0.372**	0.126	0.224**	0.428**	1

*Correlation is significant at the 0.01 level (2-tailed)
**Correlation is significant at the 0.05 level (2-tailed), N = 50

Table 4 Correlations for non-member firms

Variables	1	2	3	4	5	6	7	8	9	10
1. Net_tie(Social)	1									
2. Trust	0.427**	1								
3. Sh_vision	0.391**	0.321**	1							
4. Inf_Sharing	0.329**	0.496**	0.127**	1						
5. FPI	0.213**	0.405**	0.124**	0.516*	1					
6. TYPE	0.248	0.207**	0.078	0.319**	0.386**	1				
7. FORM	0.143**	0.341**	0.122**	0.212**	0.445*	0.056	1			
8. AGE	0.080	0.263**	0.136**	0.196**	0.268**	0.245**	−0.152**	1		
9. SIZE	0.154**	0.124**	0.159**	0.257**	0.237**	0.258**	0.218**	0.063	1	
10. MARKET	0.375**	0.140**	0.285**	0.159*	0.341*	0.170**	0.042	0.027	0.217	1

*Correlation is significant at the 0.01 level (2-tailed)

**Correlation is significant at the 0.05 level (2-tailed). N = 50

Table 5 Multiple regression analysis: effect of 'social capital' on 'information sharing'

Dependent variable: Information sharing							
Model 1: Member firms				Model 2: Non-member firms			
Independent variables	B	Beta (β)	Sig.	Independent variables	B	Beta (β)	Sig.
(Constant)	1.877		0.000	(Constant)	1.463		0.000
Net_tie (Strategic)	0.275	0.258	0.000				
Net_tie (Social)	0.149	0.122	0.001				
Trust	0.392	0.267	0.000	Trust	0.329	0.476	0.000
Sh_vision	0.269	0.137	0.006				
TYPE	0.377	0.153	0.004	TYPE	0.414	0.198	0.012
FORM	0.678	0.244	0.000				
$R^2 = 0.746$				$R^2 = 0.573$			
Adjusted $R^2 = 0.741$				Adjusted $R^2 = 0.538$			

To test the effect of social capital on information sharing two regression models were constructed with **y** as an indicator of information sharing (inf_sharing) and **x_n** as dimensions of social capital and firm related control variables (x_1 = Net_tie (strategic); x_2 = Net_tie(social); x_3 = Trust; x_4 = sh_vision; x_5 = TYPE; x_6 = FORM; x_7 = SIZE; x_8 = AGE; x_9 = MARKET). Model 1 is for member firms and Model 2 is for non-member firms.

Following stepwise regression method the most robust regression models have been presented in Table 5.

Model 1 is more robust with R^2 value of 0.746 indicating that 74.6 % variation in information sharing can be explained by all three dimensions of social capital and type and form of business. Model 1 shows that information sharing among member firms are effected by Net_tie(strategic) (β = 0.258, p < 0.01), Net_tie(social) (β = 0.122, p < 0.01), trust (β = 0.267, p < 0.01) and Sh_vision (β = 0.137, p < 0.01) are positively and significantly related to information sharing for firms having membership in formal networks. The strength of association is highest for trust among network members. Positive association between TYPE (β = 0.153, p < 0.01) and FORM (β = 0.244, p < 0.01) of business and information sharing indicates that manufacturing and incorporated firms have greater inclination towards information sharing among their network members. Model 2 shows that for firms not belonging to any formal network only the relational dimension of social capital i.e. trust(β = 0.476, p < 0.01)and TYPE(β = 0.198, p < 0.01) has a significant effect on information sharing. This indicates that among non-member firms embedded only in social networks, only trust is significant in sharing information among exchange partners and manufacturing firms are more inclined towards it. Model 2 is not as robust as model 1 whereby only 57.3 % variation in information sharing is explained by level of trust and type of the business among non-member firms.

Further, to test the impact of social capital and information sharing on firm performance six regression models were constructed with **y** as firm performance

Table 6 Multiple regression analysis: effects of social capital and information sharing on firm performance (member firms)

| Independent variables | Dependent variable: Firm Performance Index (FPI) | | | | | | | | |
| | Model 3 Social capital | | | Model 4 Information sharing | | | Model 5 Social capital and information sharing | | |
	B	Beta	Sig.	B	Beta	Sig.	B	Beta	Sig.
(Constant)	1.279		0.000	0.050		0.000	0.071		0.000
Net_tie (strategic)	0.059	0.351	0.000						
Trust	0.103	0.447	0.000				0.085	0.369	0.000
Sh_vision	0.042	0.137	0.005						
Inf_sharing				0.141	0.945	0.000	0.106	0.647	0.000
FORM	0.176	0.253	0.002						
SIZE	0.002	0.152	0.003						
AGE				0.006	0.478	0.000			
MARKET									
R^2	0.521			0.723			0.778		
Adjusted R^2	0.466			0.711			0.768		

Table 7 Multiple regression analysis: effects of social capital and information sharing on firm performance (non-member firms)

| Independent variables | Dependent variable: Firm Performance Index (FPI) | | | | | | | | |
| | Model 6 Social capital | | | Model 7 Information sharing | | | Model 8 Social capital and information sharing | | |
	B	Beta	Sig.	B	Beta	Sig.	B	Beta	Sig.
(Constant)	1.152		0.000	0.070		0.003	0.099		0.000
Trust	0.027	0.326	0.000				0.024	0.289	0.000
Inf_sharing				0.061	0.510	0.000	0.042	0.352	0.000
FORM	0.314	0.198	0.003						
MARKET				0.047	0.483	0.000			
R^2	0.352			0.480			0.549		
Adjusted R^2	0.324			0.458			0.530		

(FPI) and x_n as dimensions of social capital, information sharing and firm related control variables [$x_1 =$ Net_tie(strategic); $x_2 =$ Net_tie(social); $x_3 =$ Trust; $x_4 =$ sh_vision; $x_5 =$ TYPE; $x_6 =$ FORM; $x_7 =$ SIZE; $x_8 =$ AGE; $x_9 =$ MARKET; $x_{10} =$ Inf_sharing]. FPI (Firm performance index) has been measured as an average of capital growth, sales growth and profit growth for the related survey period. Following stepwise regression method the most robust regression models for member and non-member firms have been presented in Tables 6 and 7 respectively.

Model 3 shows the impact of social capital on firm performance after controlling for firm related attributes. Model 3 indicates that Net_tie(strategic) ($\beta = 0.351$, $p < 0.01$), trust ($\beta = 0.447$, $p < 0.01$) and Sh_vision ($\beta = 0.137$, $p < 0.01$) have a

positively significant effect on FPI among the member firms after controlling for form ($\beta = 0.253$, $p < 0.01$) and size of the firm ($\beta = 0.152$, $p < 0.01$). Regression model 3 ($R^2 = 0.521$) can explain 52.1 % variance in firm performance caused by social capital constructs of ties in formal networks, trust and shared vision after controlling for form and size of business among member firms.

Model 4 shows the impact of information sharing on firm performance among member firms. It indicates inf_sharing ($\beta = 0.945$, $p < 0.01$) after controlling for firm age ($\beta = 0.478$, $p < 0.01$) has a positively significant effect on firm performance and the effect size (β value) is greater than the social capital variables shown in model 3. Model 4 has an R^2 value of 0.723 explaining 72.3 % variations in firm performance and is more robust compared to model 3.

Model 5 (for member firms) shows the combined effect of social capital and information sharing on firm performance. Firm related control variable have also been included in the model. Model 5 indicates that social capital dimension of trust ($\beta = 0.369$, $p < 0.01$) and inf_sharing ($\beta = 0.647$, $p < 0.01$) have positive impact on firm performance and the model with a R^2 value of 0.778 can explain 77.8 % variation in firm performance. Among all the three models the effect size of inf_sharing is greatest in model 4 indicating that benefits of information sharing facilitated by social capital has greater impact on firm performance compared to the dimensions of social capital.

The construct of net_tie(social) does not have any effect on FPI in any of the models indicating that performance of firms embedded in strategic networks is not influenced by their social ties. Moreover in the presence of information sharing in the model (model 5), net_tie(strategic) and sh_vision constructs of social capital do not have direct influence on FPI. Though the relational dimension of social capital, i.e., trust is present in model 5, its effect size is lower than inf_sharing (indicated by β value). Thus it seems that among member firms, benefits of social capital are mainly being transformed to firm performance through information sharing.

Effect of social capital on firm performance for non-member firms has been shown in model 6. Model 6 indicates that among non-member firms only the relational social capital dimension of trust ($\beta = 0.326$, $p < 0.01$ and form of business ($\beta = 0.198$, $p < 0.01$) has a significant effect on firm performance. The model is not very robust and explains only 35.2 % variation in firm performance caused by social capital and form of business. The constructs of net_tie(social) and sh_vision do not have any influence on FPI. In comparison to member firms (model 3) the impact of social capital on firm performance is less pronounced among non-member firms (model 6).

Model 7 for non-member firms shows the effect of information sharing on firm performance. The model indicates inf_sharing ($\beta = 0.510$, $p < 0.01$) and market ($\beta = 0.483$, $p < 0.01$) has a significant positive effect on FPI among non-member firms but the effect size is lower compared to the effect of inf_sharing ($\beta = 0.945$) on FPI among member firms as shown in model 4. Model 7 is also less robust compared to model 4 as it explains only 48 % variation in firm performance. This shows that effect of information sharing on firm performance is more pronounced among member firms having ties in strategic networks compared to non-member firms who have ties in social networks only.

Model 8 shows the combined effect of social capital and information sharing among non-member firms. Similar to model 5 for member firms, model 8 also indicates that only the relational dimension of social capital i.e. trust ($\beta = 0.289$, $p < 0.01$) and inf_sharing ($\beta = 0.352$, $p < 0.01$) have a positive effect on FPI but the effect size of both the variables (as shown by β value) is less than that of member firms (model 5). Model 8 is less robust than model 5 and explains only 54.9 % variation in FPI caused by social capital and information sharing facilitated through social capital. This indicates that effect of social capital and information sharing on firm performance is more pronounced among member firms as compared to non-member firms. Also among the non-member firms information sharing has greater effect on firm performance as compared to the dimensions of social capital further substantiating our view that the positive effect of social capital is translated into firm performance through information sharing.

The purpose of this study was to investigate the effect of different dimensions of social capital on information sharing and consequently firm performance in SMEs. The positive impact of social capital on information sharing and the effect of information sharing on firm performance is well established in theory and research reviewed in this paper. The present study contributes by proposing that social capital has an effect on firm performance through information sharing, which is established in regression models 5 and 8. In this view, information sharing is the mechanism through which firms are able to unlock the benefits of social capital. In fact, it might be the case that information sharing is simply one of several such mechanisms.

Our findings to this effect among member firms are supported by the existing literature. Our study reveals a significant effect of all dimensions of social capital on information sharing among member firms (Model 1). We find that the structural dimension of social capital measured by network ties in strategic alliances and social alliances have a significantly positive association with information sharing among member firms. Relational dimension of social capital measured through trust and cognitive dimension measured through shared vision also have a positive association with information sharing among member firms. On the other hand, model showing positive and significant effect of information sharing on firm performance among the member firms (Model 4) is more robust than the model showing effect of social capital on firm performance (Model 3). This improvement of firm performance can be attributed to enhancement of competitive advantage achieved through information sharing among network members. Our study supports past findings that strategic alliances in the form of membership in formal networks helps in developing relationships between members and they come to trust each other and share valuable information. Firms having strategic alliances also seem to benefit from social alliances supporting past findings that firms engage in different types of networking to gather valuable information.

The presence of smaller and younger firms among our sample of non-member firms justifies the positive association between trust and information sharing (Model 2). Literature supports our findings that small and young firms are highly dependent on their personal and social relationships with family members or friends

to obtain valuable information. The findings of our study reveal that structural dimension and cognitive dimension of social capital does not influence information sharing among the non-member firms. Among non-member firms only the relational dimension of social capital measured through trust has a significantly positive association with information sharing. Our findings are in line with past research that information sharing in networks not guided by formal mechanisms largely depends on the level of trust among the network members. Though information sharing is positively associated with firm performance for non-member firms (Model 7), the strength of association is quite less compared to member firms (Model 4). This comparatively stronger impact of information sharing on firm performance among member firms may be attributed to the fact that firms in strategic networks have the opportunity to share information about new techniques, suppliers, customers, or technology which provides them competitive advantage unavailable to the non-member firms to a great extent.

While testing the direct effect of social capital on firm performance we found that only trust had a direct effect on firm performance for both member and non-member firms (Models 5 and 8). Unlike trust we did not find any direct effect of network ties (Strategic and Social) and shared vision on firm performance. Our study brings forth that benefits of the structural dimension and cognitive dimension of social capital is translated to firm performance through information sharing. Our finding on direct effect of trust on firm performance has been supported in several past studies. Trust can become economically valuable to a firm when it affects the SME owner/manager's ability to act on opportunities that may emerge from networking and trust among network participants is a necessary condition if cooperative behavior is to be fostered, particularly for networks that share valuable information.

An implication for practicing managers is that firms should not only actively build up trust and establish close network ties with their exchange partners, but should also ensure that information sharing between them effectively and smoothly takes place to translate the effects of social capital into improved firm performance.

7   Concluding Remarks

This study suffers from some of the inherent limitations of all quantitative research. The variables that represented the different dimensions of social capital are by no means exhaustive. The operationalization of the dimensions of social capital may not have fully captured the various facets of each dimension. There were also some obstacles in collecting financial data related to the growth of capital, sales and profits of the sample firms which were used as firm performance indicator. In more than eighty percent cases the respondents were reluctant in sharing the financial information about their firm. There are also several other measures of firm performance like productivity, market expansion and competitiveness improvement which can be adopted in future studies.

Secondly, most research that report on similar data sets focus on firms of same industry only, whereas, our data contains firms from different industries. Future research may be carried out with firms in the same industry. Hitt et al. (2002) argued that Asian firms have a comparative advantage over Western firms in the formation and management of alliances and networks due to their strong social capital, but few empirical studies have been conducted systematically to investigate whether the social capital–performance relationship may vary in different cultural contexts. Our study has been conducted on firms in the same region embedded in similar social and cultural context. Comparative studies may be conducted on effects of dimensions of social capital on information sharing and firm performance in varying cultural contexts.

Another major limitations from which our study suffers is that we have not taken any entrepreneurial trait into consideration. Future studies may be conducted controlling for entrepreneurs' education, gender, age and locus of control. Overall, the findings largely support the proposed model that is deeply rooted in the theoretical foundations of social capital theory. The study significantly illustrates how information sharing may form a link between social capital and firm performance.

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The Impact of Vertical Specialization on the Agglomeration of China's Manufacturing Sector: An Empirical Research Based on Province Level Panel Data

Qi Fan and Hahui Hu

Abstract This paper examined the impact of vertical specialization on the agglomeration of China's manufacturing sector from a regional perspective. It also explored the features of the agglomeration process of manufacturing sector in different regions of China. The paper first calculated the degree of vertical specialization and agglomeration respectively by using statistics of 2-digit manufacturing sub-industries at province level from year 2003 to 2008. And then it further built a panel data model to estimate the impact of vertical specialization on the agglomeration of manufacturing sector at both national and regional level. The results of the research reveal the existence of strong regional disparity as to the impact of vertical specialization on agglomeration of China's manufacturing sector. Vertical specialization is found to be significantly positive related to the formation and development of manufacturing agglomeration at national level. However, this positive effect on national level, as suggested by a more thorough estimation, owes mainly to the positive relation of the two subjects in eastern China. Different from the case in eastern and western China, where vertical specialization stimulates manufacturing sector to be agglomerated, the impact of vertical specialization on agglomeration is negative in the middle part of China.

Keywords Agglomeration • Vertical specialization • Manufacturing sector • Regional disparity

1 Introduction

With the development of global production network, international specialization has been extended to intra-product level and thus forming a pattern of vertical specialization. As a matter of fact, one of the dominant features of globalization has

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been the international vertical specialization, where previously integrated production process of a product is split up into several stages that can be undertaken in different locations (Jones and Kierzkowski 2005) and each country specialize in one or more stages of the whole process (Hummels et al. 2001). One result of the deepening of vertical specialization is the dispersion of value chain fragments into different countries on a global scale. However, alongside with this trend, another phenomenon being widely observed is the emergence of agglomerations of vertically related industries within a certain country. Just as what Jones and Kierzkowski (2005) suggest, though the dispersion of economic activities has been increasing, especially at the international level, it may contributes to the growing agglomeration of vertically disintegrated production segments in certain geographical areas at the same time.

China would probably be a vivid example of the above trend. China's economic boom sparked by the reform and opening-up policy has gained deniable achievements and during this process of opening up and economic development, the degree of China's participation in international specialization deepened continually. Since the 1990s, especially after China's entry into WTO, vertical specialization has become the major form for China to participate in international specialization. For example, according to Koopman et al. (2008), foreign value-added add up to 50 % of total value-added in China's export. In some industries, e.g., electronic equipment industry, this ratio could even be as high as 80 %. By taking advantage of its relatively low labor cost, fair infrastructure, preferential policies and other location advantages, China vigorously expands its participation in international vertical specialization. The continuously deepening of vertical specialization, in turn, becomes a crucial stimulator of China's rapid growth in manufacturing sector and contributes to China's trade growth over recent decades (Zong 2008). The rapid development of processing trade in China is also a consequence and distinctive manifestation of participating in vertical specialization.

During the same period, another phenomenon being observed is the dramatic change in the geographical pattern of China's manufacturing sector. On the one hand, manufacturing gradually concentrates to China, making China the world's manufacturing centre. While on the other hand, within China, manufacturing activities gradually agglomerate to the eastern coast where the level of vertical specialization is the highest, leading to a decline in the relative share of manufacturing of middle and western China, and thus intensifying the regional disparity inside China (Chen 2008). It is almost beyond dispute that participating in global production network is a double-edged sword to China's economic development. On the one hand, it provides opportunity for rapid economic growth, while adding to the uncertainties of China's regional coordinated development on the other (Chen 2009).

Is China's participation in global vertical specialization a significant influencing factor as to the agglomeration process of China's manufacturing sector? If the answer is positive, then is the impact of vertical specialization on the agglomeration of China's manufacturing sector regionally differentiated? This paper will look into these questions and it aimed to better understand the feature of the agglomeration process of manufacturing sector in China and the impact of vertical specialization

on it. The results may also be of meaning to important propositions such as the industrial development of China and the treatment of China's regional inequality.

2 Literature Review

Though there have been numerous studies on vertical specialization and industrial agglomeration respectively, the research of the two subjects was quite separated. And by far, specific research on the relationship of the two, especially the impact of vertical specialization on industrial agglomeration is still relatively limited comparing to those studies regarding only one of the two subjects.

There are already some theoretical works that explains possible mechanism through which vertical specialization may cause the economic activities to be more agglomerated. Though it is not the focus of this paper to explore the theoretical mechanism, these perspectives lay an important foundation for this research.

With the efforts of many studies in the field of new economic geography, production linkage is demonstrated to be a crucial channel for industrial agglomeration. The quest for positive forward and backward linkages between industries or sectors could be a driving factor for firms to agglomerate (Fujita et al. 1999). Vertical specialization decomposes the industrial chain into different fragmentations. And there might be strong linkages between these fragmentations since they are originally integrated. Thus, Vertical specialization may promote industrial agglomeration by increasing and enhancing the linkages between upstream and downstream (Chen and Xia 2006). Wang and Dong (2005) further explained the micro mechanism through which vertical specialization may lead to agglomeration. As they pointed out, vertical specialization promotes the evolution and complication of firms' transaction networks and thus in turn increases the firms' tendency towards geographical concentration in order to avoid or to reduce the potential increase of transaction costs.

On the basis of these studies, this paper intended to provide empirical insights in to the impact of vertical specialization on agglomeration specific to China. Some empirical studies specific to China laid the foundation for this paper. Chen (2009) examined the impact of resource endowments and vertical specialization on regional industrial agglomeration in China. As demonstrated by his work, the rise of industrial agglomeration rate in eastern China is mainly due to vertical specialization rather than resource endowments, and the case in western China is exactly the opposite; while in the middle region, both resource endowments and vertical specialization significantly contribute to industrial agglomeration. Qian and Chen (2009) and Qian (2010) also contributed to the very research topic. They came up with the concept of international fragmentation of production instead of vertical specialization, and analyzed its impact on industrial agglomeration. Dynamic panel GMM methods is used in their papers and the empirical analysis based on province level data revealed that international production fragmentation is positively related to industrial agglomeration in eastern and middle China, while it weakens the degree of agglomeration in western China.

In summary, though there are already some attempts in theoretically explaining the mechanism through which vertical specialization may affects industrial agglomeration, the research on this topic is still limited, especially the empirical study on the impact of vertical specialization on agglomeration and its regional characteristics specific to China. This paper complements to existing literatures by studying the impact of vertical specialization on the agglomeration of manufacturing sector in China from a regional perspective. To achieve the purpose, the paper built a panel data model. Observations of 27 provinces in China mainland over the year of 2003–2008 are covered in the sample. The measurements of the degree of vertical specialization and agglomeration are introduced in the paper respectively and are calculated by using annual statistics of 2-digit manufacturing sub-industries at province level. The paper first estimated the impact at national level. And then, to examine the regional differential of the impact, we classified the 27 provinces into several sub-samples and each sub sample was then estimated separately.

3 Model and Methodology

3.1 Econometric Model Specification

To estimate the impact of vertical specialization on the agglomeration of manufacturing sector from a regional perspective, a multiple linear panel model which consists of time dimension and regional dimension was constructed. The general form of the basic model is demonstrated as follows:

$$\ln\text{AGG}_{it} = \alpha_{it} + \sum_{k=1}^{K} \beta_{ki} \ln x_{kit} + \mu_{it} \tag{1}$$

AGG_{it} refers to the degree of agglomeration, and it is the observation value of the degree of agglomeration at region i in the year t. The total number of independent variables in the model is K and the observed value of each independent variable is noted as x_k. α is the constant term and μ is the residual term.

3.2 Variables and Data

3.2.1 Dependent Variable

The dependent variable is the degree of agglomeration of manufacturing sector in each region, which is named as *AGG*. In this paper, an improved measurement of the degree of agglomeration was introduced, taking Wu (2007) as reference. To be specified:

$$AGG_{it} = \sum_{j=1}^{N} agg_i^j(t)/N \qquad (2)$$

$$agg_i^j(t) = s_i^j(t) / \sum_{i=1}^{M} s_i^j(t) \qquad (3)$$

AGG_{iit} is the average degree of agglomeration of region i's manufacturing sector in year t. $agg_i^j(t)$ is the degree of agglomeration of sub-industry j in region i. It is represented by the ratio of industry j's value of output in region i (which is named as $s_i^j(t)$) to the total output of industry j nationwide. N is the total number of sub-sectors in manufacturing industry and M is the total number of provinces. Statistics of manufacturing sub-industries at province level are obtained from *China Industry Economy Statistical Yearbook* and *China Economic Census Yearbook 2004*. The national industry classification system (GB/T4754-2002) states thirty one 2-digits sub-sectors in manufacturing, corresponding to code C13-C43 under GB/T4754-2002. However, only 20 sub-sectors are included in *China Industry Economy Statistical Yearbook* ever since the year of 1998. As the statistics caliber of these 20 industries is consistent with the national industry classification system, the paper used these sub-industries as the content of manufacturing sub-sector. Specifically, the 20 sectors include food processing, food manufacturing, beverage manufacturing, tobacco processing, textiles, paper and paper products, petroleum processing and coking, chemical materials and products, chemical fiber, pharmaceutical products, nonmetallic mineral products, ferrous metal smelting and rolling processing, non-ferrous metal smelting and rolling processing, fabricated metal products, transportation equipment, electrical equipment and components, electronic and communications equipment, general equipment, specialized equipment, and instrumentation and office supplies. Among all the provinces, Tibet, Ningxia, Inner-Mongolia and Qinghai are excluded from the sample because of severe data deficiency. Statistics from the other 27 provinces (municipalities and autonomous regions) and municipalities directly under the central government in China are all collected.

3.2.2 Independent Variables

The explaining variable of interest in this paper is the share of vertical specialization *(VSS)*. There are different measurements of vertical specialization. After a comparison of these measurements, this paper measured *VSS* by the ratio of export in processing trade to total export.[1]

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[1] A comparison of different measurements of the share of vertical specialization can be referred to Horgos (2009), and the rationality of using the proportion of export in processing trade to measure VSS in China can be referred to Hu and Zhang (2008).

$$VSS_{it} = PEXP_{it}/EXP_{it} \qquad (4)$$

PEXP is the value of export in processing trade and *EXP* is the value of export in total. *i* refers to each region, and *t* refers to time-spot. Statistics of processing export and export of each region's manufacturing sectors are obtained from DRCnet database.

A careful selection of control variables is important for the study in that the formation of industrial agglomeration is a complex process which is influenced by a combination of multiple factors. Traditional comparative advantage theory and the more recently developed new economic geography theory all shed lights in this. Comparative advantage theory emphasizes the decisive impact of factor endowment on agglomeration, while new economic geography theories reveal the important role of economies of scale, trade costs, market size and linkages in the formation of industrial agglomeration. Guided by these theories and on the basis of previous articles (e.g., Chen 2009; Qian 2010), the paper chose the following variables which reflect regional characteristics:

Resource endowment (*RES*): This paper focused on the relation between energy endowment and agglomeration. The measurement of energy endowment can be referred to Chen (2009). To be specific, *RES* is measured by the gross production of coal, oil and natural gas. The statistics of year 2003 are obtained from *China Energy Statistical Yearbook 2007*. Other statistics are from *China Energy Statistical Yearbook 2009*. The paper assumes *RES* to positively affect agglomeration.

Fixed-asset investment (*INV*): Investment is a crucial factor in the development of manufacturing sector as it's a major source of capital. And it is thus assumed to promote the formation of agglomeration. In this paper, the ratio of a region's fixed-asset investment to its local GDP is used as the proxy of *INV*. All data needed are obtained from *China Statistical Yearbook* and have been computed to use 2003 as the base year. GDP is deflated by GDP deflator and fixed-asset investment is deflated by price index of investment in fixed assets.

Human capital (*HUM*): Areas with higher human capital is often more attractive to businesses, and thus be beneficial for economic activities to agglomerate. The paper assumes that human capital is a stimulator to agglomeration of manufacturing activities. The paper used the proportion of a region's population with college (and above) degree in its local total population to measure *HUM*. Data are selected from *China Statistical Yearbook*.

The degree of openness (*OPEN*): The higher an area's degree of openness, the lower the trade cost in there. According to the findings of new economic geography, reducing trade cost is suggested to promote industrial agglomeration, and thus this paper assumes that manufacturing sector tends to agglomerate to areas with higher degree of openness. The ratio of one region's total foreign trade volume to its total local GDP is used as the measurement of *OPEN*. Foreign trade data are from *China Statistical Yearbook* and have been converted to be CNY-denominated by using each year's average price of U.S. dollar to CNY.

Market scale (*SCALE*): Firms tend to agglomerate to the regions with larger market scale to enjoy the economies of scale, and this is the so called home market effect (Helpman and Krugman 1985). Thus, the paper assumes that the expansion of market scale will promotes manufacturing sector to be further agglomerated. In this paper, local GDP per capita of each region is used as an approximate estimation of its market scale. Data needed are obtained from *China Statistical Yearbook* and have been computed to use 2003 as the base year.

The time span for the entire sample is from year 2003 to 2008.

4 Econometric Analysis and Results

The paper first investigated the impact of vertical specialization on the agglomeration of manufacturing sector at national level. The correlation between each pair of independent variables was tested and the respective correlation coefficients are listed in Table 1. The core variable of interest is *VSS* in this paper; but it is significantly correlated with *OPEN*. So, In order to avoid multicollinearity, variable *OPEN* is excluded from the national level examination.

Then stepwise regression method was used to conduct econometric estimation. Firstly, Chow test and Hausman test were conducted and according to the results of the tests, which can be seen in Table 2, the specific form of the model should be set as entity fixed effects regression model. Main regression results of each national level equation are also listed in Table 2. The sample selected in this paper has relatively large number of cross sections. To avoid cross-sectional heteroscedasticity, generalized least squares (GLS) method using cross-section weights was used for correction.[2]

A comparison of the results of Eqs. (1) and (2) further proved the correlation between *VSS* and *OPEN*, and thus rationalizes the exclusion of *OPEN* from the national level estimation. As revealed by the regression results, the impact of vertical specialization on the agglomeration of manufacturing sector is significantly

Table 1 Correlation coefficients (national level)

	VSS	OPEN	SCALE	HUM	INV	RES
VSS	1.00					
OPEN	0.82	1.00				
SCALE	0.62	0.81	1.00			
HUM	0.17	0.20	0.24	1.00		
INV	−0.30	0.37	−0.21	0.13	1.00	
RES	−0.27	0.28	−0.23	0.06	0.18	1.00

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[2] Results after such correction are better than that without correction, so the text only demonstrated the results of corrected estimation.

Table 2 Regression results (national level)

Independent variables (in LOG terms)		Equation (1)	Equation (2)	Equation (3)	Equation (4)	Equation (5)
VSS		0.0700 (0.01534)***	0.0675 (0.0124)***	0.0698 (0.01524)***	0.0702 (0.0152)***	0.0723 (4.7623)***
RES		0.0551 (0.0224)***	0.0571 (0.0215)***	0.0382 (0.001)***	0.0545 (0.0231)**	0.0487 (0.0144)***
INV				0.0353 (0.0362)		
HUM					−0.0012 (0.0028)	
SCALE						−0.0134 (0.0252)
OPEN			−0.0234 (0.0401)			
Constant term		−3.5914 (0.0484)***	−3.6255 (0.0673)***	−3.5912 (0.0491)***	−3.5947 (0.0436)***	−3.5925 (0.0396)***
Model form test	Chow	372.299***	319.631***	361.129***	369.4443***	289.112***
	Hausman	696.777***	14.848***	15.136***	13.003***	24.201***
Adj. R^2		0.99668	0.99665	0.99672	0.99666	0.99619
F-statistic		1729.101***	1654.525***	1688.624***	1656.598***	1452.034***
Number of obs.		162	162	162	162	162

Standard errors are in the parentheses. The explained variable is AGG
***, ** and *Significant at 1 % level, 5 % level and 10 % level respectively

positive at national level, which is in line with the paper's assumption. Resource endowment also positively affects agglomeration, but less effective than vertical specialization. That is to say, endowment is no longer the first and for most criteria for specialization as to China as a whole. Unlike what was expected, investment in fixed assets, human capital and market size failed the test of significance.

Since there are immense differences and inequality among the eastern, middle and western part of China, a more thorough estimation of each region was conducted respectively. As the results showed, there is a strong regional disparity as to the impact of vertical specialization on agglomeration of China's manufacturing sector.

Here we first introduce the case of eastern China. The results are presented in Table 3. According to results of correlation analysis shown in Table 4, *VSS* and

Table 3 Regression results (regional level)

Independent variables (in LOG terms)	Eastern		Middle		Western	
	Equation (6)	Equation (7)	Equation (8)	Equation (9)	Equation (10)	Equation (11)
VSS	0.143		−0.113	0.132		
	(0.046)		(0.029)	(0.020)		
	***		***	***		
RES	−0.053	−0.0471	0.179	0.280	0.300	0.229
	(0.001)	(0.011)	(0.008)	(0.062)	(0.077)	(0.066)
	***	***	***	***	***	***
INV	0.254	0.293	−0.131	−0.184	−0.226	0.149
	(0.06)***	(0.131)**	(0.1)	(0.139)	(0.139)*	(0.228)
HUM	−0.002		−0.005	−0.010	−0.002	−0.009
	(0.003)		(0.005)	(0.007)	(0.008)	(0.006)
SCALE	−0.305	−0.356	0.189			−0.407
	(0.039)	(0.098)	(0.141)			(0.085)
	***	***				***
OPEN		0.029	0.239		−0.128	
		(0.076)	(0.042)		(0.175)	
			***			
Constant term	−2.667	−2.693	−3.666	−4.112	−4.624	−4.292
	(0.108)	(0.207)	(0.106)	(0.195)	(0.175)	(0.085)
	***	***	***	***	***	***
Chow test	1061.7***	888.1***	22.6***	143.4***	396.8***	138.6***
Hausman test	40.55***	8.83*	68.64***	2.35	3.27	8.09*
Adj. R^2	0.998	0.996	0.960	0.439	0.262	0.263
F-statistic	2522.3***	1048.8***	87.9**	10.2***	5.2***	5.2***
Number of obs.	66	66	48	48	48	48

Standard errors are in the parentheses. The explained variable is AGG. According to Chow test and Hausman test, the specific form of the model for western China is set as the random effect model and the others entity fixed effects regression model. Generalized least squares (GLS) method with cross-section weights was used for correction

***, ** and *Significant at 1 % level, 5 % level and 10 % level respectively

Table 4 Correlation coefficients (regional level)

	VSS	OPEN	SCALE	HUM	INV	RES
Eastern						
VSS	1.00					
OPEN	0.76	1.00				
SCALE	0.37	0.62	1.00			
HUM	0.11	0.13	0.20	1.00		
INV	−0.28	−0.43	−0.11	−0.07	1.00	
RES	−0.03	0.41	−0.38	−0.12	0.41	1.00
Middle						
VSS	1.00					
OPEN	−0.20	1.00				
SCALE	−0.30	0.44	1.00			
HUM	−0.03	0.04	−0.10	1.00		
INV	0.34	0.11	0.38	−0.15	1.00	
RES	−0.30	0.40	0.23	0.03	−0.03	1.00
Western						
VSS	1.00					
OPEN	−0.51	1.00				
SCALE	−0.58	0.62	1.00			
HUM	−0.05	0.14	0.01	1.00		
INV	0.29	0.14	0.63	−0.08	1.00	
RES	−0.03	0.17	0.32	0.08	0.43	1.00

OPEN are highly correlated. Therefore, OPEN is excluded in Eq. 6. As expected, the rise of the degree of vertical specialization will promote manufacturing sector to further agglomerate in eastern China. The regression coefficient, which represents the elasticity of agglomeration to vertical specialization, almost doubles that at national level. However, different from the case under national level analysis, the most important factor as to the agglomeration of manufacturing sector in eastern China is not vertical specialization but the investment in fixed assets. What's more, resource endowment is no longer a driving factor for agglomeration when it comes to the case of eastern China.

In Eq. 7, VSS is substituted by OPEN, and a minor positive effect is found for the degree of openness which is however not significant. This implies that, in eastern China, the specialization of manufacturing sector is no longer the so called horizontal specialization which majorly relies on endowment. The regression coefficient of HUM turns out unexpectedly to be negative and passed the significance test. It can be inferred that human capital was not an important factor when firms make decisions about locating themselves to eastern during the period covered by the sample selected. Unlike Qian (2010) which found that the eastern region has a strong home market effect, the coefficient of SCALE is significantly negative in this paper. We inferred that domestic demand is still not strong enough to replace foreign trade to become the dominant factor driving economic growth in eastern China, though the household consumption level there is at the top in China.

The agglomeration process in middle China follows a pattern which is largely different to that of eastern China. In middle China, *OPEN* is not highly correlated with *VSS* because its trade is still mainly the horizontal one. The results show that the increase in the degree of openness is the most important driving factor of agglomeration; while the coefficient of *VSS* is negative and statistically significant. This implies that horizontal specialization is still the dominant form of specialization in middle China and promotes agglomeration while the rise of the share of vertical specialization here tends to increase the dispersity of manufacturing activities within the region. Resource endowment also positively affects agglomeration, but less effective than opening up. Investment in fixed assets, human capital and market size failed the test of significance.

In western China, vertical specialization has positive effect on agglomeration of manufacturing sector; however the degree of its impact is much weaker than that of resource endowment. These can be seen from the coefficients of the two variables The regression coefficient of *VSS* is 0.13, which is less than half of the coefficient of *RES* which is as high as 0.28. Similar to the case of middle China, the impact of investment in fixed assets and that of human capital are not significant.

5 Conclusions

This paper mainly focused on the examination of vertical specialization's impact on the agglomeration of China's manufacturing sector. It also explored the features of the agglomeration process of manufacturing sector in different regions of China. The overall study was conducted from a regional perspective. The paper first calculated the degree of vertical specialization and agglomeration respectively at province level from year 2003 to 2008, and then a panel model was built and both national and regional level estimation were conducted to further address the regional disparity of the impact.

During the sample period, the share of vertical specialization stimulates China's manufacturing sector to be more agglomerated at national level. When having looked into regional level, a strong regional disparity of such impact is found. Vertical specialization can stimulate manufacturing sector to be agglomerated in eastern and western china, while it has a negative effect on agglomeration in the middle China. The estimated effect of vertical specialization on agglomeration is most significant in eastern part and is much greater than that in the other regions. This can be partly explained by the differences among regions in their history, economic development level, factor endowment and other location characteristics. Eastern China, depending on its superiority in history, geography location and factor conditions, has been at the forefront of participating in international vertical specialization and is actively occupying a leading place within the country. Being deeply involved in vertical specialization, more and more economic activities gather in eastern China as the degree of vertical specialization continuously

deepens, promoting the formation of agglomeration and this effect is to be strengthened by the self-reinforcing mechanism of agglomeration.

A deeper insight on the cause of the regional disparity of vertical specialization's impact on industrial agglomeration will involve investigations into relevant characteristics of industries within manufacturing sector. The formation of industrial agglomeration is the result of the combination of various factors and there are a number of criteria to be met, however these factors and criteria are different when it comes to different industries and thus, the impact of vertical specialization on agglomeration will be different according to different industries. To put it simply, the impact of vertical specialization on industrial agglomeration is industry specific (Zang and Li 2011). Follow this reasoning, because of the differences in their industry structure and their status in vertical specialization, the impact of vertical specialization on agglomeration varies as to different regions through its differentiated impacts on different industries. Though an in-depth study on the very topic from an industrial perspective is beyond the scope of this paper, it will be a meaningful and necessary research subject.

Other enlightenments of this paper were achieved by looking into other important factors that affect industrial agglomeration. By doing so, we can also know more about the features of the agglomeration process of manufacturing sector in China. The paper examined the role of resource endowment in agglomeration. The findings show that resource endowment advantage is still the main stimulator to industrial agglomeration in both middle and western China, but at national level, the importance of endowment to location choice of manufacturing activities has already fallen behind that of the degree of vertical specialization. In the estimation of this paper, there is no proof for the existence of home market effect no matter at national level or regional level. Domestic demand is still not strong enough to replace foreign trade to become the dominant factor driving economic growth in China. The role of human capital in manufacturing agglomeration is also not clear. This may be a result of the overall lack of human capital in China, or it may also be possible to be caused by the firms' excessive pursuit of policy rent over agglomeration rent. To give reasonable explanations to these preliminary findings will involve more efforts in the future.

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Existing Technologies in Online Job Matching Tools and Their Potential Usage for Disadvantaged People

Ahmet Suerdem, Basar Oztaysi, and Nazli Turan

Abstract Online job matching tools to support HR functionalities in organizations is increasingly becoming popular. Fast and efficient employment solutions for disadvantaged groups are especially important since they are a part of social inclusion. Employment process of disadvantaged groups is different than regular job finding processes because these individuals may not have physiological, cultural, economic, technical and/or political resources to reach the candidate evaluation process. Even if they can reach to this process, they can be discriminated because of the prejudices. This might end up with sub-optimal solutions since the disadvantaged individual may be forced to find employment not relevant to their qualifications while the employers may face skills shortages. Solution to this problem requires new approaches to employment process. The objective of this paper is to make a process modeling of the existing employment systems for the disadvantaged people and suggest possible improvements to these systems.

1 Introduction

The strategic significance of matching high quality employees to high quality jobs for enhancing the competitive advantage has been the focus of many studies (Boxall and Purcell 2003; Breaugh and Starke 2000). Although traditionally recruitment has been an activity achieved by the HR functions of an organization, electronic automation techniques offered by online recruitment systems have started to substitute many of these functions. When they first emerged in the mid-1990s, popular management press heralded these systems as a 'recruiting revolution' (Boydell

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2002). Despite this hype, however, some critics (e.g., Harris et al. 2003; Kehoe et al. 2005; Stone et al. 2013) have noted that these systems are still not an efficient alternative to traditional methods because of their unintended dysfunctional consequences. For example, their focus on cost-efficiency may cause them to overlook the task of matching the most qualified applicants to high quality jobs (Kehoe et al. 2005; Pearlman and Barney 2000). Moreover, poorly designed websites may divert the qualified job seekers from important job opportunities (Pastore 2000). Last but not the least, research has also found that these sites are too complicated to use successfully by most stakeholders.

Online recruitment systems were found to be implicitly discriminating especially for some disadvantaged groups and SMEs (e.g., Reynolds and Dickter 2010; Stone et al. 2003). These systems are usually designed by a "core team" of experts set out to create a tool that satisfies the standards of certain individuals and organizations and unaware of the needs and requirements of specific groups. There is a danger that members of some disadvantaged groups could be excluded further as they might not share standard requirements. These concerns have initiated some efforts for building online recruitment systems specifically designed for disadvantaged people such as the Czech initiative "The online job centre for foreigners" (MPSV 2014); KC4 ALL—Key Competences for All and the Employability Toolkit[1]; "Surfenzum Job—Digitale Chancen auf dem Arbeitsmarkt" (Surfing to the Job—Digital Opportunities on the Labour Market)[2] and the "ePortfolioSkane" run by the Swedish city of Malmö.[3] Match Project for Immigrants' Employability (MATCH 2014) worth especially mentioning since it includes state of art tools exploiting semantic technologies. Specifically designed for the immigrants, the system allows job seekers to annotate their knowledge, skills and competences in a shared format. A particular feature which makes the project interesting is the inclusion of a tool targeting to overcome lexical and semantic differences in the descriptions of qualifications, résumés and job profiles to form a knowledge base enabling the automatic matching of job seekers' qualifications with companies' requirements.

Although an important step for addressing the specific needs and requirements of the disadvantaged groups, current online systems for the disadvantaged groups tend to have a rather narrow focus and are not customizable to address the specific issues that may be faced by certain individuals. One of the most fundamental issues these systems have been facing is their inefficiency in attracting job offers, especially for highly qualified job seekers (Bridge-it 2014). Majority of the job offers on these platforms have either been for unskilled secondary labor market positions or found to be unreliable. This is mostly due to the cognitive cost of using these platforms for the SMEs and skilled disadvantaged people. Usually, using online tools require

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[1] Please see Employment Toolkit 2014 http://www.keycompetences.eu. [Accessed 20 April 2014].

[2] Please see Jobsuche Online Open 2014 http://www.surfen-zum-job.de. [Accessed 20 April 2014].

[3] Please see Eportfolioskane 2014 http://www.eportfolioskane.se. [Accessed 20 April 2014].

"extra work" and cognitive investment which has opportunity costs for some skilled groups who find inefficient to dedicate some time and effort for learning these extra skills (Sitzmann et al. 2010). Majority of these costs does not come from learning 'internet skills' and understanding technical features as these groups are highly technologically literate. The deficiency comes from the 'content-related internet skills' (relating to searching for information and using such information strategically), as these groups can hardly dedicate extra time and effort to develop strategic internet skills and making the internet work for a specific purpose besides their general internet use skills. Traditional search engine techniques are inefficient in terms of information retrieval as they are not capable to recognize and respond to the implicit requirements of a user who has untypical statements in a search query. Simple information retrieval systems depending on Boolean queries cannot handle these requirements which has to be done in a more fuzzy and complex manner (Drigas et al. 2004). Such systems are usually dependent on the user to provide an adequate entry of their requirements, which is a difficult task for the members of some disadvantaged groups. This brings into fore the importance of more flexible, smart and customizable expert decision systems with personalization techniques capable of considering user preferences as a means of classifying retrieved results as relevant or irrelevant.

This gap in current systems has attracted some academic attention. In the rest of the paper, we will concentrate on the literature investigating such intelligent online match-making systems. Following this, we will analyze the existing online recruitment systems in Turkey and finally we will offer some suggestions to combine the reviewed intelligent systems to the state of art for more flexible and personalized employment solutions.

2 Literature Review

Intelligent systems allowing flexible and customizable solutions have recently become widely used in the areas such as speech/natural language processing, robotics, medical diagnosis, e-commerce and information retrieval. On the other hand, literature on the application of these solutions to online recruitment systems is sparse and has only recently started to take-off. We can basically classify the existing literature into five major categories: semantic, fuzzy, multi-criteria decision making, machine learning and optimization approaches.

2.1 Semantic Approaches

Semantic approaches basically perform analysis and categorization of unstructured textual materials such as CVs, case scenarios and job offers by using automated filtering, lemmatization and natural language processing techniques. For example,

Trichet and Leclère (2003) propose a knowledge management based matching system mining the Semantic Web context. The proposed system first builds reference systems for particular domains, then identifies, formalizes and represents competency profiles and finally matches these profiles. In a similar manner, García-Sánchez et al. (2006) underline an intelligent web portal which serves as a service provider in recruitment tasks. An ontology represents the recruitment domain knowledge and it is used to guide the design of the application and to supply the system with semantic capabilities. The ontological component of the system provides intelligent matches between job offers and job seekers. Bizer et al. (2005) investigate how online recruitment processes can be facilitated using semantic web technologies and build a scenario for supporting these processes and summarize the potential impacts of semantic technologies for predicting their influence on the recruitment process for the markets, companies and job-seekers.

2.2 Fuzzy Sets

Fuzzy sets theory initially developed by Zadeh (1965) provides a mathematical representation of uncertainty and enables developing formalized techniques for handling problems that contain imprecision. In the field of engineering, decision making and computational intelligence there are various techniques and applications of fuzzy sets. For recruitment systems, fuzzy sets are generally used to integrate linguistic and fuzzy assessments into the evaluation of the job seeker. In that respect, Golec and Kahya (2007) suggest a comprehensive hierarchical structure for selecting and evaluating right employee. A competency-based fuzzy model is used to match an employee with a certain job. Through this model, the system can constitute employee selection to fulfill the objectives of an organization, identify the suitable factors, measure indicators, and set up an evaluation standard for facilitating the decision process. Similarly, Lin (2009) proposes to improve a job placement using a two-way choice frame that takes into account fuzzy assessments. The author focuses on internship decision process between enterprise and students. Enterprise-student matches and student- student combinations are evaluated. A mixed integer programming model is applied to fulfill the "efficient fit from the right" policy. In a fuzzy environment, personnel evaluation and placement problems are tackled by Liang and Wang (1992). A fuzzy multiple-criteria personnel evaluation algorithm is used to get a more convincing and accurate decision-making process. In addition to this, a Kuhu-Munkres based polynomial time algorithm is developed by combining the concepts of fuzzy set theory and the weighted complete bipartite graph for personnel placement. Fuzzy sets are also used for advanced expert systems, Drigas et al. (2004) presents a hybrid expert system for the assessment of the unemployed at certain offered job posts. The expert system uses Neuro-Fuzzy techniques to analyze a database of job-seekers and enterprises profile data. As training phase directly effects the results in neuro-fuzzy systems, the system was trained by using old historical records containing

job-seeker, rejected or approved information. Consequently, the system evaluates the suitability of a candidate for the certain job with more accuracy. The literature is not limited to the analysis traditional personal properties. For example, Overbeek et al. (2008) propose a formal framework for using cognitive instead of personal data in order to improve fit between actors and tasks. They initially categorize several actor and task types based on cognitive characteristics and then implement the proposed framework for matching the actors to the tasks. In the proposed framework, suitability of an actor to fulfill a task is calculated by functions based on fuzzy assessments.

2.3 Multi Criteria Decision Making (MCDM)

Multi Criteria Decision making (MCDM) is a method used for complex problems where more than one criteria should be taken into account during the decision making process. In the field of online recruitment, the expectations from the candidate (such as education, skills etc.) constitute the criteria. In the literature, MCDM techniques are generally used to complement other methods. For example, Li et al. (2010) utilize a model that combine a five-factor personality inventory, support vector machine (SVM), and TOPSIS to improve the quality of match-making. The online questionnaire personality testing developed by the International Personality Item Pool (IPIP) is utilized to identify the personality traits of candidates and SVM is used to classify the candidates according their fitness degrees. In a similar manner, Faliagka et al. (2012) suggest a MCDM based online recruitment system to automate job-seekers' pre-screening. The proposed system employs Analytic Hierarchy Process (AHP) on the basis of criteria that can be extracted from the applicant's LinkedIn profile and performs linguistic analysis on applicant's blogs in order to infer their personality characteristics. The job seeker's fit for a position is determined according to individual selection criteria and their relative significance is controlled by the recruiter.

2.4 Machine Learning

Machine learning, concerns the construction and study of systems that can learn from the past data to solve problems such as classification, clustering, regression anomaly detection, and association. In one of the recent studies in job match making field, Park (2013) presents a matchmaking system that adaptively adjusts the recommendation model reflecting the user's implicit and explicit preferences. While the system provides recommendations for new users on the basis of their assigned explicit preference weights, it then automatically adjusts the weight of each attribute by analyzing their previous behaviors using logistic regression. Labate and Medsker (1993) designed Skills Analyzer Tool for solving management

problems concerning the employee's assignment into several projects. The tool combines neural networks and rule-based analysis to match the employees to certain tasks of new projects. Rafter et al. (2000) apply collaboration filtering techniques to the search engine of the JobFinder website. The proposed model consists of two parts, a profiling system that creates the user profile according to his/her behavioral characteristics learned by the machine and an automated collaborative filtering engine for recommendations.

2.5 Mathematical Optimization

Mathematical optimization is the selection of a best solution from a set of available alternatives with the aim of maximizing or minimizing an objective function by choosing input values from an allowed set. Calì et al. (2004) presents an ad-hoc optimization algorithm based on a logical framework for matching job profile demand and supply. Algorithm takes into account the deficit between demand and supply when the profiles can have missing or conflicting information. Kavitha et al. (2011) study matching applicants to jobs under one sided preferences which means the applicants rank a subset of jobs. The study is based on mixed design polynomial time algorithms Chen et al. (2012) models the competent choices of each party by using skylines. The term skyline is defined as all possible trade-offs between the evaluation inputs (i.e. experience and qualification or salary and benefits) that are superior to others. In order to make recommendations to all job seekers a series of skyline view queries are proposed and the algorithms are improved to answer these queries in batch.

The studies examined in the literature review are summarized in Table 1.

Table 1 Classification of the techniques used for job matching

Classification	Related studies
Semantic approach	Trichet and Leclère (2003), Bizer et al. (2005), García-Sánchez et al. (2006)
Fuzzy approach	Liang and Wang (1992), Golec and Kahya (2007), Lin (2009), Drigas et al. (2004), Overbeek et al. (2008)
Multi criteria decision making	Faliagka et al. (2012), Li et al. (2010), Liang and Wang (1992)
Machine learning	Álvarez de Toledo et al. (2014), Park (2013), Li et al. (2010), Labate and Medsker (1993), Rafter et al. (2000)
Optimization	Kavitha et al. (2011), Chen et al. (2012), Calì et al. (2004)

3 Research: Existing Online Recruitment Systems in Turkey

3.1 Method

In this section, we investigate current online recruitment systems for disadvantaged people in Turkey and Istanbul to model their process flows. Process modeling (PM) is an analytical illustration to help document, communicate, or improve an organization's work processes. PM is also used for requirements elicitation as part of software design processes. It illustrates processes with work-flow diagrams that can be shared by both system designers and organization managers. We collected the data for process modeling through the document analysis of the materials related to the online employment process. The document corpus covers three main areas: (1) leading online recruitment tools used in Turkey, (2) online tools which focus on disadvantaged groups, (3) interviews with municipality level employment agency officials. The existing applications and studies are examined according to their target groups, core functionalities provided to job seekers/ employers, and methods of job matching.

The activities of ISKUR, the employment agency of Turkey, and two Municipality Employment Services in Istanbul are examined in terms of their current process flows and their use of the intelligent systems proposed by the literature.

3.2 Finding: Process Flow Models

The employment agency of Turkey (ISKUR) is an independent legal entity which is a subsidiary of the Ministry of Labour and Social Security. All the private employment agencies in Turkey can only operate with the authorization of ISKUR. ISKUR provides and maintains an electronic database which can be reached from all agencies in Turkey. According to the regulations, there are three groups which are treated by ISKUR as disadvantaged: disabled people, ex-convicts and terror victims. After verifying they belong to one of these groups, individuals can be classified as disadvantaged and can apply for the suitable job offers. The agencies store job seeker and job information and match them according to a filter based technique. This system uses none of the mentioned intelligent methods. The work flow of ISKUR is presented in Fig. 1.

In the city level, Istanbul municipalities have their own employment centers which are connected to ISKUR. ISKUR does not force a general policy to these employment centers, they are autonomous in their operations. Besides ISKUR, some sub-municipalities have their online recruitment systems. In order to get the process flow of the existing online job-matching systems for the disadvantaged, we have conducted interviews with two of these sub-municipalities.
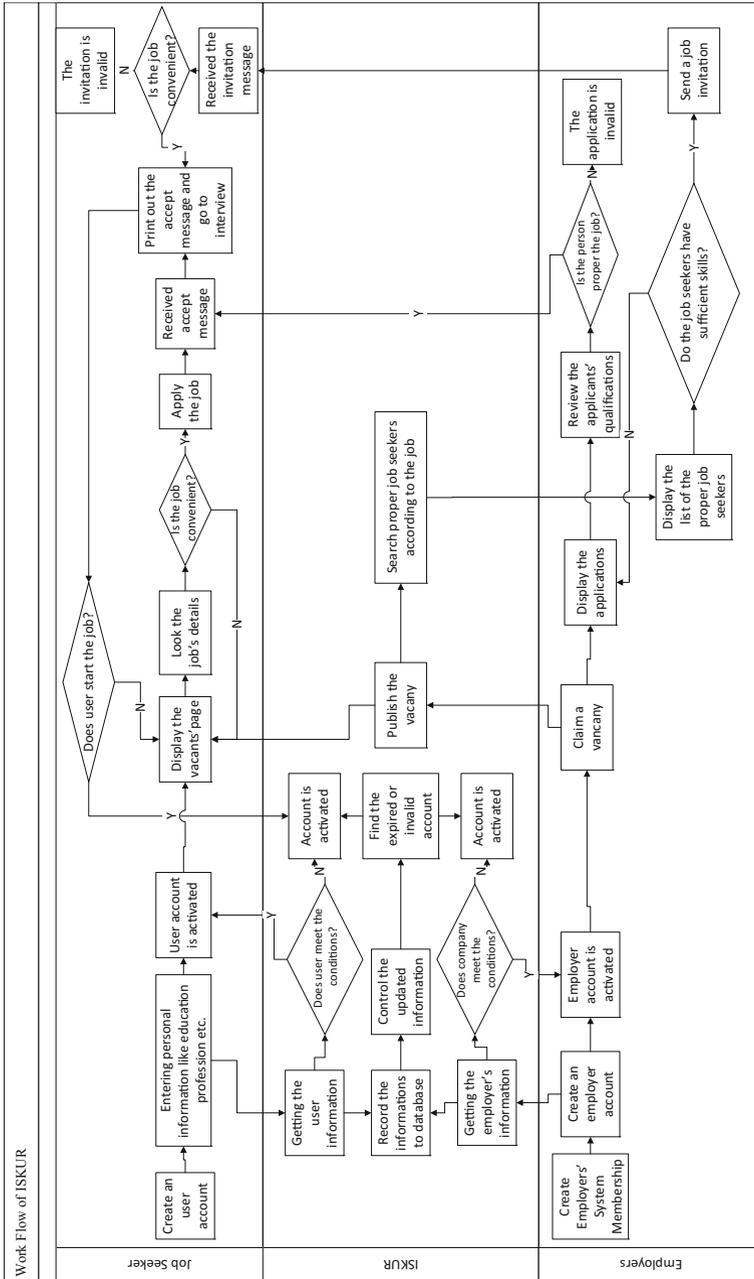
Fig. 1 Work flow of ISKUR

3.2.1   Beyoglu Municipality

BEYIM[4] is the acronym for employment service of Beyoglu Municipality. BEYIM actually applies an employment model which aims to match the job-seekers who are living in Beyoglu with employers from the same district. With this model, BEYIM aims at lowering the transportation costs and improving employee satisfaction. There are nearly 4,000 job-seekers enrolled to the system and nearly 250 matching have already been achieved. BEYIM also organizes specialized courses based on the needs of the employers, such as cookery, waiter and hotel staff trainings. The job matching process is done manually by database search and the work flow of BEYIM is represented in Fig. 2.

BEYIM defines disadvantaged groups as disabled individuals, housewives, young retirees and families of martyrs. BEYIM tries to give priority to the disadvantaged groups by arranging part time jobs and internships, but there is no affirmative action concerning these groups. In general, if a company employs a disadvantaged job-seeker from BEYIM, it gets an incentive such as being exempt from social security payments.
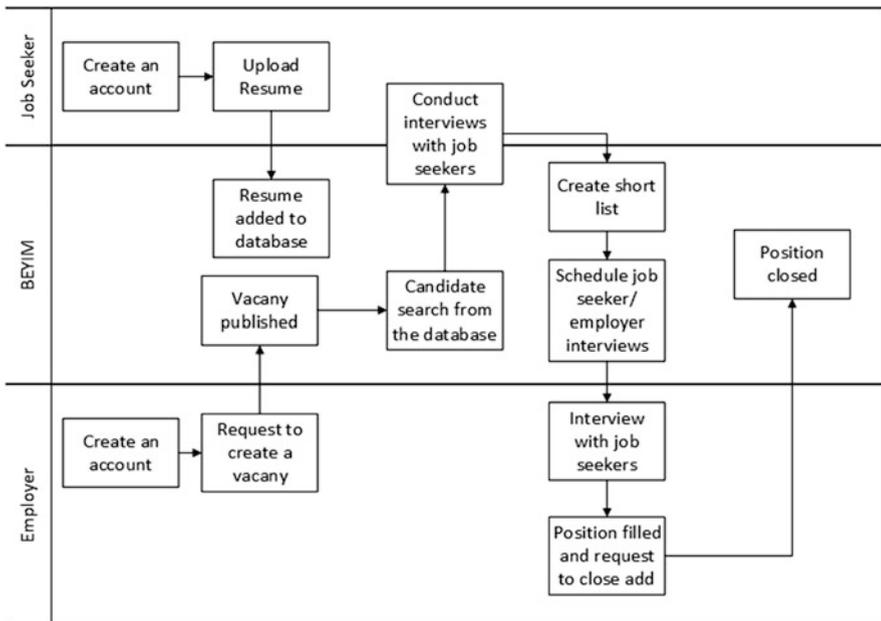

Fig. 2   Work flow of BEYIM

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[4] Please visit http://www.beyogluistihdam.com. [Accessed 20 April 2014].

3.2.2 Kadıköy Municipality

Kadıköy municipality operates two service centers about employment; ESDEM (Education and Social Support Center)[5] and EngelsizIs.[6] ESDEM organizes trainings such as computer literacy, handcraft trainings focused on underqualified people, especially for housewives and retirees. ESDEM plans to build an online job matching platform but haven't started the operations yet.

EngelsizIs, the other initiative of Kadıköy municipality, is an employment service that concentrates on disabled people. The office was founded as a part of a European Union project in 2005 and operates since then. EngelsizIs aims to get in personal touch with disabled job-seekers, motivate them about the jobs and give instructions about a successful interview process. Also, EngelsizIs periodically organizes courses on computer literacy, accounting, and graphical design for disabled people. The office also gets in direct contact with employers, tries to learn about the potential jobs and matches them with existing job-seekers. Again no automatic match making systems are used. The workflow of EngelsizIs is represented in Fig. 3.
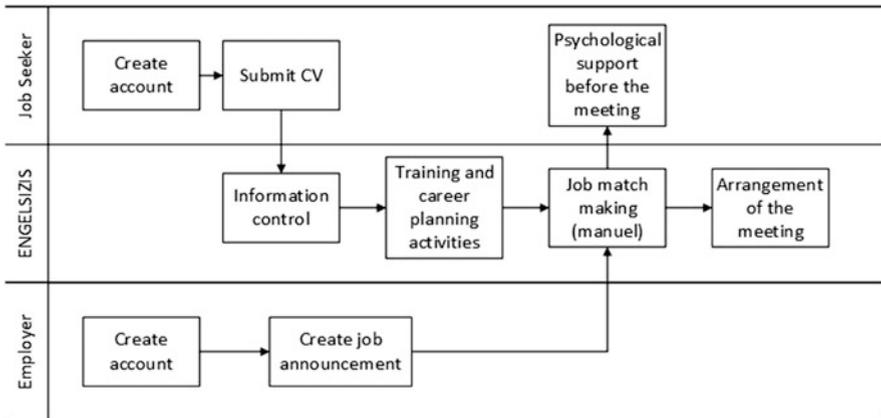

Fig. 3 Work flow of EngelsizIs

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[5] Please visit http://www.esdem.kadikoy.bel.tr. [Accessed 20 April 2014].

[6] Please visit http://engelsizis.kadikoy.bel.tr. [Accessed 20 April 2014].

4   Conclusion

In this paper, we reviewed the recent literature on intelligent systems allowing flexible and customizable online employment solutions and modeled the process flow diagrams of existing online job-matching systems in Turkey. Our findings suggest that present systems are limited to basic functions and need essential improvements to fulfill needs and requirements of specific groups. The dominant ISKUR system maintains a centralized database and does not provide customized solutions for disadvantaged groups. Decentralized systems offered by the sub-municipalities do not provide extensive database solutions and do not allow sophisticated match-making possibilities. A future system design customized for disadvantaged people should take into account intelligent job matching systems. This requires *high quality process modelling with the active participation of all the stakeholders that ensures the development of a shared vision of the system processes*. Hence, process innovation cannot be done solely by top-down model engineering of systems but also requires the involvement of needs and requirement analyzes during different stages to ensure participation of stakeholders. The data obtained from these analyzes can be applied to build the various intelligent systems proposed by the literature into the existing systems. Future research needs to take this into account to complement the process flows obtained in this paper towards a more intelligent, flexible and customizable system architecture.

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Using Conjoint Analysis to Determine the Requirements of Different Users for Designing Online Solution Tools: Job Matching Platform

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Abstract Online systems first emerged as recruiting tools in the mid-1990s have grown rapidly and became a widely adopted medium by both employers and job seekers. However, despite their success, they have important drawbacks. These tools are mostly designed for matching corporate positions to certain elite employees rather than covering disadvantaged groups, SMEs and NGOs. Key features of present systems are determined by a "core team" of experts according to the aggregate requirements of an average target user. Designing an inclusive recruitment system requires a rigorous conceptualization phase where all stakeholders actively participate within a multidisciplinary approach with the collaboration of engineers with social. In this paper, we embraced a user-centered approach to determine the relative importance of different online recruitment tool features for diverse users and conducted conjoint analysis to determine the needs, requirements and expectations of different stakeholders, male–female job seekers and job providers from SME or MNEs, We performed requirement-based segmentation on the output from the conjoint analysis to isolate homogeneous user segments. The results demonstrated that there are significant differences between the groups and suggest that conjoint analysis can provide systematic input for process modeling to customize online tools according to the requirements of different stakeholders.

Keywords Conjoint analysis • New product development • System design • Product preference

1   Introduction

Online systems have first emerged as a recruiting tool in the mid-1990s and have been baptized by the popular management press as a 'recruiting revolution' (Boydell 2002). Since then, their use has grown rapidly and they became a widely adopted medium by both employers and job seekers. However, despite their

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success, they have important drawbacks, which implicitly keep at bay certain types of organizations and individuals. These tools are mostly designed for matching corporate positions to certain elite employees and have been found unsuitable for some disadvantaged groups and SMEs and NGOs. Key features of present online recruitment systems are determined by a "core team" of experts according to the aggregate requirements of an average target user. These features generally neglect the requirements of specific groups. Designing an inclusive recruitment system ensuring diversity should be able to manage changing and conflicting requirements. This requires a rigorous conceptualization phase where all stakeholders actively participate for developing a shared vision of the system components. This phase must entail a multidisciplinary approach whereby technical innovators become responsive to the societal needs and societal actors become co-responsible for the innovation process with their constructive inputs. Hence, collaboration of engineers with social researchers who would translate the voice of the societal actors to the design process becomes essential for an inclusive product development process. In this paper, we embraced a user-centered approach to determine the relative importance of different online recruitment tool features for diverse users and conducted conjoint analysis, which is a quantitative market research technique to determine the needs, requirements and expectations of different stakeholders from an inclusive online recruitment platform.

This paper is organized as follows: A literature review covering talent management, development of online recruitment platforms, and implicit exclusion of diversity in online platforms, and integrated product and process innovation for designing an agile and inclusive online recruitment tool has been done. Research methodology to determine the relative importance of diverse product features for different stakeholders including sampling, instruments and procedures has been explained. Finally, study outcomes with the conclusion have been presented.

2 Literature

2.1 Talent Management and Development of Online Recruitment Tools

A firms' competitive advantage is directly tied to the recruitment and management of the talents who make up its human capital pool (Cheese et al. 2008). A talent pool insufficient to fill strategic positions may seriously impede the growth of an organization (Ready and Conger 2007). Recently, talent management has started to emerge as a new discipline to complement classical HRM tools for creating a high potential talent pool and allocating high performing employees to fill strategic positions (Becker and Huselid 1998; Mellahi and Collings 2010). Talent management (TM) can be defined as a systematic, strategic and technology based approach to human resource management (HRM) (Lewis and Heckman 2006). It may be

distinguished from classical HRM practices as it exploits high technological tools such as software and databases and a system approach for maintaining functions such as recruiting, selection, development and career and succession management (Lewis and Heckman 2006).

Recruitment can be regarded as one of the fundamental elements of talent management. It 'includes those practices and activities carried out by the organization with the primary purpose of identifying and attracting potential employees' (Breaugh 2000). Compared to classical HRM, TM focuses on the attraction of talents than their selection. Searching for and selecting new talents can be a time-consuming and potentially conflict-ridden activity, particularly when talent candidates are scarce, currently working in other companies, and when the suitability of the candidate for the available position is difficult to evaluate (Klehe 2012). 'War for talent' (Lievens et al. 2002) led the companies to fill the gap by employing third party agents who are paid by the client when they recruit appropriate employees for the offered positions. These agents, namely headhunters, handle the complexity in recruitment in an efficient manner as they have their own industry specific databases; hence have access to a larger talent pool (Klehe 2012).

Besides many advantages of headhunters, some disadvantages repel firms to use them for their talent recruitment purposes. First, they are not cost effective; costs can exceed the benefits as they sometimes may charge about 50 % of the annual salary for senior-level positions. Second, there are some malpractice allegations for them such as misrepresenting the qualities of some candidates. Third, the potential for unethical methods exist such as stealing successful talents from their current employers (Parry and Tyson 2008). Consequently, matching talents with high quality jobs still remains a problem. For example, according to the Chartered Institute of Personnel and Development (CIPD) (2007) 84 % of organizations in the UK experienced recruitment difficulties, and still in need of choosing appropriate ways to access qualified talents (cited in Parry and Tyson 2008).

Since their introduction in mid-1990s, online recruitment tools have provided high technological solutions to complement the inefficiencies of the existing recruitment methods (Parry and Wilson 2009). They have grown rapidly since then and become one of the fundamental talent management tools. For instance, studies show that US online recruitment sources contain 110 million jobs and 20 million unique resumes and revenues top $2.6 billion in 2007. All Fortune 100 Companies use some form of e-recruiting methods and 94 % of Global 500 companies use their websites for recruitment, as compared to just 29 % in 1998 (Maurer and Liu 2007). In a similar manner, in the UK 64 % of employers prefer online job boards and 42 % declared that they used up to five different job boards simultaneously (jobs.ac.uk 2013).

In the literature, research has shown that companies and job seekers preferred online recruitment to the traditional HR techniques because of their many advantages. First of all functional properties such as cost effectiveness, better access to talents, proper targeting in any specific area or industry, fast response and turn-around times, and ease of use make these tools attractive to the users (Galanaki 2002; Thompson et al. 2008; Zusman and Landis 2002). In addition, intangible

communicative properties such as interactivity and usability, ability of presenting more information regarding the corporate values, enhanced corporate image for attracting talents, and active search and application opportunities have been reported (Cober et al. 2004; Lievens et al. 2002). These findings in the literature are also supported by a comprehensive survey conducted by CIPD (2006) which found that 71 % of the respondents used e-recruitment to reduce recruiting costs, 60 % to broaden the selection pool and 47 % to improve the time to hire (Parry and Tyson 2008).

However, despite their many advantages, online recruitment tools are far from being at a mature stage for a flawless functioning. When they had first emerged in the 1990s, the major difficulty was the insufficiency of the technology to track and manage the large number of resumes and applicants (Parry and Tyson 2008). This still remains a problem. A longitudinal study conducted by Parry and Tyson (2008) have found that huge number of applications, including many unsuitable ones such as from people who had no permission to work in the country was among the most frequently declared problems. According to a survey conducted by IRS Employment Review (2005), 74 % of organizations received inappropriate responses to their job postings. On the side of the applicants, potential negative impacts include low or no response to job applications, user unfriendliness and poor design of the websites (Parry and Tyson 2008). Problems concerning both sides include risk of considering only efficiency and cost containment rather than goal of hiring; cheating; and invasion of privacy (Maurer and Liu 2007; Stone et al. 2013).

2.2 Online Recruitment and Implicit Exclusion

Online recruitment tools have also raised discrimination concerns because of their bias towards certain groups and inability to maintain diversity in talent recruitment and management (Maurer and Liu 2007; Stone et al. 2013). These tools are found to fail to be inclusive towards members of some disadvantaged groups and SMEs (Mellahi and Collings 2010). These failures contain issues such as over-emphasis on individual performance; glorification of the recruitment of the "star players" outside the company; discrimination by excluding less able employees from career development opportunities; and neglecting the cultural issues. Moreover, these tools have been found to be user-unfriendly for the SMEs and non-profit organizations because of the issues such as difficulty in driving traffic to their web sites and inability to investing in the promotion of intangible properties such as the corporate image. These organizations find it hard to attract talents since the cognitive cost of conducting a comprehensive assessment of job offer attributes is much higher than having some heuristic clues about the general image of the company. Hence, companies and organizations that could not afford investing in image building might remain invisible to the talents on online recruitment platforms (McDonnell et al. 2010).

These concerns have important drawbacks in terms of talent recruitment and management. Besides social exclusion issues, uniformity of the talent pool can seriously impede creativity and innovation in an organization. Generation of new ideas, new services, and new products require teamwork of individuals with different backgrounds and a diverse set of experiences and perspectives (Maznevski and Distefano 2000). Dissimilar mind-sets lead to the out-of-the box voices encouraging the breadth and depth of innovative and creative thinking (Bourne and Ozbilgin 2008). Today's dynamic business environment requires managing shifting relationships and connections and adapting to the complexity. Neglecting diversity can lead to management failures as the organizations may fail to adapt to the complexity on an effective basis and to develop a sufficient talent pipeline to fill strategic positions in an uncertain business environment (Brewster et al. 2005; Cheese et al. 2008).

Insufficiently diverse talent pools; unmanageable high volume of applications by the unsuitable candidates; difficulties in online and offline process reconciliation; technical problems and litigation issues can be summarized as the major drawbacks of online recruitment platforms. One of the main reasons for these drawbacks can be summarized as the "one size fits all", top down approach applied in the design phase where these platforms are planned as rigid models with predefined product boundaries (Palmer and Kaplan 2007). Consequently, present platforms have been biased to target large corporations willing to hire highly talented employees who can help them meet their short run (e.g., productivity) performance goals rather than the formation of a diverse talent pool (Maurer and Liu 2007). To make these platforms more efficient and effective for handling diverse stakeholder needs and requirements, an innovative tool with more flexible, open and interactive properties is needed.

2.3 Integrated Product and Process Innovation for Designing an Agile and Inclusive Online Recruitment Tool

Innovation can be defined as finding better solutions that meet emerging requirements by creating applicable new ideas and their exploitation for commercial product development. Besides new product development, innovation also includes the development of new processes for improving production and delivery methods by applying new techniques, equipment and/or software (Pankowska 2012). Online recruitment platforms can be accepted both as a product as they consist a bundle of tangible and intangible attributes such as features, functions, benefits, and uses and also as a process since they consist a set of structured, measurable activities designed to deliver a specific output (job matching) within a specific time-frame (Davenport 1993). Hence, development of an innovative online recruitment platform meeting the specific requirements of disadvantaged groups entails an integrated effort. Such a platform needs to improve and renovate the product features in

line with the inclusion of diverse talent groups and offering advanced features for personalized matchmaking. It also needs to reform the rigid bureaucratic and formal processes, which might cause implicit discrimination to maintain the task of matching right people to the right positions.

Conventionally, new product development is a top-down engineering activity involving a "core team" of experts who design the product according to predefined key specifications fitting to the aggregate requirements of an average target user. However, focusing only on the aggregate requirements and identifying the product according to modifiable rigid definitions may carry the risks of exclusion of some user groups and cannot handle the complexities in an uncertain environment (Bhattacharya et al. 1998). Product definition should be an open process which follows a rigorous conceptualization phase involving testing different ideas, analyzing the needs and requirements of different user groups, and understanding the community ecosystem. Products with unclear or incorrect concepts cause high costs and/or failure at later stages of the development process (Floren and Frishmmar 2012). The conceptualization phase takes the product as a system rather than an entity and targets to design an open system architecture identifying a dynamic model of the structure, behavior and different views of the product.

For the complex systems integrating process and product innovations and composed of a structured collection of software modules, stakeholders, data structures and interfaces, any mismatch between the requirement analysis and system architecture can lead to fatal failures (Wood and Jones 1995). For designing such systems, rigorous requirement analyzes involving different stakeholders and user groups should identify the objectives and enable to develop flexible, large-scale, efficient and effective products for the end user. Such requirement analyzes should not be based only on the identification of the needs of an average customer but should engage a wide range of stakeholders, groups or individuals who can affect or is affected by the achievement of the product or the process (van Riel et al. 2013). Stakeholders should voice their concerns in terms of determining the desirable and undesirable features of products, being affected from the externalities of a product and monitoring the company's actions (Orlitzky et al. 2003; Wood and Jones 1995). Managing legitimate concerns of multiple stakeholders as a part of corporate social performance is an essential element of integrative innovation process (Hauser et al. 1993; Mahajan and Wind 1988; Talke and Hultink 2010). Detecting as early in the process as possible different and sometimes conflicting demands is crucial for filtering ideas that are likely to be failures (Goldenberg et al. 2001). EU science in society initiatives emphasizes the role of engaging the stakeholders into the innovation process. Responsible- Research-and-Innovation as defined by the EU is a comprehensive approach aiming to involve all the affected stakeholders at an early stage. This is crucial for obtaining the tacit knowledge of different users on the consequences of the outcomes of an innovation and the range of different options for effectively evaluating both outcomes and options. Then, these considerations may be used as functional requirements for designing and development of new products and services (EU Commission 2013).

Designing an online recruitment platform according to Responsible Research and Innovation principles requires an integrated approach involving both product and process dimensions. As a product, its design should include normative anchor points such as being user friendly for disadvantaged groups, diversity concerned, flexible and reconciliation of different stakeholder needs and expectations. As a process, it must allow to be managed in a more responsive, adaptive and integrated manner. Since integrating these dimensions involves both technological and societal issues, a multidisciplinary approach whereby technical innovators become responsive to the societal needs and societal actors become co-responsible for the innovation process by a constructive input is needed. Hence, collaboration of engineers with social researchers who would translate the voice of the societal actors to the design process becomes essential for an inclusive innovation (Von Schomberg 2013).

There are three fundamental social research designs for involving stakeholders into the system development process: user-centered; participatory and user-driven (Friedrich 2013). In the user-centered design process, system designers focus on the product such as an object, communication, space, interface, or service looking for ways to ensure that it meets the requirements of the potential user groups. The social scientist/researcher serves as the mediator between the user and the system designer. The researcher collects primary data or uses secondary sources to learn about the needs of the user; interprets this information, often in the form of system architecture criteria. Then, the designer interprets these criteria, typically through concept sketches or scenarios. In the participatory and user driven innovation methodologies, stakeholders express themselves and actively participate to the development process or even co-create the process by generating knowledge (Sanders 2003). In this paper, we embraced a user-centered design to determine the relative importance of diverse product features for different stakeholders and conducted conjoint analysis, which is a quantitative market research technique to determine the needs, requirements and expectations of different stakeholders from an inclusive online recruitment platform.

3 Method

Conjoint analysis is a widely used technique to quantify the users' preferences among competing products or services and can also be used to build in users' preferences to new product development (Gustafsson et al. 2007; Green and Srinivasan 1989, 1990). Conjoint analysis is also applied to study process development issues such as environmental valuation, health care management, and supply chain management to name a few (Farber and Griner 2000; Ryan and Hughes 1997). There are also some studies concerning the conjoint adoption of different innovation processes (Rotaris 2003) and job choice as an integrated system (Krishnamurthi 1988; Montgomery and Barbara 2011; Cattin and Wittink

1989). However, conjoint research concerning development of online recruitment platforms remains a gap in the literature. This paper aims to fill in this gap.

Conjoint research designs provide the respondents with a set of profiles and ask them to rank or rate their preferences between these sets designed according to different characteristics (attributes and their levels). These empirical preferences are then processed in such a way to generate quantified partial utilities for each level of each attribute. Utilities in this sense means the values assigned by the users for certain trade-offs and making preferences among multi-attribute objects. In its usual form, these utilities are estimated according to a regression model, which takes the respondents' preferences as the dependent variable and dummy variables for levels of features as the independent variables. Ultimately, this allows understanding the relative importance of each characteristic for different users. Briefly, conjoint analysis decomposes overall assessment into implicit utilities for characteristics of a product and identifies: (a) the weight of each feature during a choice decision, (b) the composition of the feature during the decision, and (c) determines the partial utilities for the each level of each feature. This analysis may be conducted for all respondents or for selected market segments.

3.1 Sample

For our purposes, we surveyed a group of potential user segments to be involved during a recruitment process. For the sampling design, we applied quota sampling, where each user segment is profiled according to two strata, namely gender and size of the company ($n = 40$). We recruited female job-seeker respondents through "yenidenbiz",[1] a social enterprise for supporting women who have interrupted their carriers and wish to return to job market. We recruited male job-seeker respondents through our connections, mainly PhD students. Both groups represent highly qualified individuals since our research concerns talent recruitment. We have also contacted the HR departments of different organizations for selecting the respondents representing the talent managers of Multi-National Enterprises (MNE) and Small and Medium Sized Enterprises (SME).

3.2 Instruments

For the conjoint design we started with the determination of the dimensions of an online recruitment tool, which might be relevant to the potential users. From the existing literature (Parry and Wilson 2009) for a comprehensive list of factors, we determined eight basic factors considered as important as a feature of an online

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[1] http://www.yenidenbiz.com

recruitment platform (their levels in parentheses): Industry Coverage (just big MNEs, includes industry specific, includes SMEs); online interview (yes, no); online tests (yes, no); Referencing Feature (yes, no); Visual appearance (basic, standard, attractive); depersonalized CV (yes, no); pool size (low, medium, high); information about company (simple, standard, includes corporate values). We have especially included depersonalized CV since such procedures are assumed to directly focus on qualifications rather than the potentially discriminating but irrelevant properties such as gender, origin, religion etc. The main idea of depersonalized application procedures is to protect applicants from prejudice based implicit or explicit discrimination during application procedures (Bourgeault et al. 2013).

3.3 Procedures

Using the list of eight features and their levels as the starting point, we generated a fractional factorial design with 27 different profiles of online recruitment platforms since it isn't necessary and would be cumbersome for the respondents to use all combination of feature levels required by the full factorial design. We used "Generate Orthogonal Design" feature in the SPSS software as it generates profiles that permit the statistical testing of several factors without testing every combination of factor levels. We generated a separate card for each product profile by exporting the generated profiles to PowerPoint, where each table (product profile) is placed on a separate slide. Then we presented each respondent with these slides each representing a set of alternative product profiles and asked them to rank order them from most to the least preferred. The respondents were promised their personal utility estimates as an incentive to execute the task in a rigorous manner. The task was salient to them since they were in the process of job search and/or responsible for HR functions. We then used the collected data for estimating the parameters of the conjoint model reflecting the profile preferences as a dependent variable and levels of the attributes that characterize them as independent variables. We used conjoint.sps syntax in SPSS for these estimations.

4 Findings

4.1 Utility Scores

Table 1 shows the utility (part-worth) scores for each potential user group and their standard errors for each factor level. Higher utility values indicate greater preference. Size of the talent pool seems to be the most significant factor related to the preferences of both male and female job-seekers, while depersonalized application

Table 1 Utility scores for different groups

		Male		Female		MNE		SME	
		Utility estimate	Std. error	Utility estimate	Std. error	Utility estimate	Std. error	Utility estimate	Std. error
Indcov	Just big MNEs	1.573	1.267	1.383	1.280	3.391	0.355	−7.207	1.212
	Includes industry specific	−0.530	1.267	−0.540	1.280	−0.451	0.355	2.859	1.212
	Includes SMEs	−1.043	1.248	−0.843	1.261	−2.940	0.350	4.348	1.194
Int	No	−0.044	0.950	−0.151	0.960	−0.606	0.266	0.130	0.909
	Yes	0.044	0.950	0.151	0.960	0.606	0.266	−0.130	0.909
Test	No	−1.069	0.950	−1.030	0.960	−.495	0.266	−0.895	0.909
	yes	1.069	0.950	1.030	0.960	0.495	0.266	0.895	0.909
Ref	No	1.374	0.936	0.994	0.946	−0.138	0.262	0.156	0.896
	yes	−1.374	0.936	−0.994	0.946	0.138	0.262	−0.156	0.896
Visual	Basic	1.086	1.334	1.298	1.348	−1.375	0.374	0.118	1.276
	Standard	−2.110	1.192	−2.208	1.204	−0.031	0.334	0.089	1.140
	Appearance	1.024	1.248	0.910	1.261	1.406	0.350	−0.208	1.194
Deper	No	−1.553	0.950	−1.817	0.960	0.005	0.266	0.355	0.909
	Yes	1.553	0.950	1.817	0.960	−0.005	0.266	−0.355	0.909
Pool	Low	−7.091	1.186	−6.954	1.198	−7.721	0.332	−4.600	1.135
	Medium	1.659	1.137	1.591	1.149	2.364	0.319	1.053	1.088
	High	5.432	1.258	5.363	1.271	5.357	0.352	3.547	1.204
Compinfo	Simple	1.053	1.334	1.199	1.348	0.551	0.374	−0.248	1.276
	Standard	0.457	1.192	0.434	1.204	−0.438	0.334	1.334	1.140
	Includes corporate values	−1.510	1.248	−1.633	1.261	−0.113	0.350	−1.085	1.194

is significant only for women. This is in line with our hypothesis that disadvantaged groups would prefer depersonalized procedures for recruitment. While MNEs value the features such as online interviews and tests, these are not relevant for the SMEs. This can be due to the fact that SMEs do not already have a testing background and have a preference for more face-to-face interactions during the job interviews. As expected, both MNEs and SMEs are biased towards an online platform covering their sectors. Size of the talent pool is important for both groups. While visual attractiveness of the website is important for the MNEs, this is irrelevant for the SMEs. Other features are equally insignificant for both groups.

4.2 Relative Importance

The range of the utility values (highest to lowest) for each factor provides a measure of how important the factor was to overall preference. Factors with greater utility ranges play a more significant role than those with smaller ranges.

The relative importance of the size of the talent pool is largest for all groups, except SMEs who consider the coverage of the SMEs as relatively most important. Another point to consider is the relative low influence of the depersonalized applications for the employer groups and higher influence for the job-seeker groups, especially for women (Table 2). We can say that according to the job seekers, including depersonalized application procedures to an online platform would be an element that would respond their requirements.

Table 2 Relative importance of the features for different groups

	Male	Female	MNE	SME
	Importance values	Importance values	Importance values	Importance values
Indcov	9.906	8.330	23.093	43.051
Int	0.874	1.669	4.368	2.784
Test	7.166	6.843	4.495	6.612
Ref	9.182	6.664	2.144	1.368
Visual	11.291	12.131	10.524	3.235
Deper	9.797	12.203	1.981	3.125
Pool	42.133	41.611	47.637	30.313
Compinfo	9.651	10.548	5.757	9.512

5　Conclusion

In this paper, we presented how conjoint analysis can be used to determine different stakeholder expectations from an online recruitment platform. The results suggest that while some expectations of some groups overlap, some others may not coincide and even be conflicting. These results may provide some interesting insights for the system engineers for building personalized, user-centered designs. A flexible and customizable online recruitment platform should be able to reconcile these conflicting requirements through an intelligent system. This requires designing the system architecture with the active participation of all the stakeholders to ensure the development of a shared vision of the system processes. Hence, the findings provided by our analyses needs to be complemented by the participatory and user driven innovation methodologies where stakeholders express themselves and actively participate to the development process or even co-create the system-components. Qualitative research techniques which can provide more in depth data about the participants such as interviews, participant observations or focus groups can help us to understand multiple, and often conflicting, interpretive positions. Future research needs to take this into account and system designers can use the provided information to design more intelligent, flexible and customizable system architectures. Fuzzy data obtained from qualitative research can be built into the system by applying intelligent system techniques such as fuzzy sets, Multi Criteria Decision Making (MCDM), semantic approaches, Machine learning and Mathematical optimization.

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