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Editorial

Illumination in times of Uncertainty: Fifty Shades of Innovation for Societal Impact

João José Pinto Ferreira[1], Anne-Laure Mention[2], Marko Torkkeli[3]

[1]INESC TEC - INESC Technology and Science and FEUP - Faculty of Engineering, University of Porto, Portugal; [2]Luxembourg Institute of Science and Technology, Visiting Professor & Deputy Director of Centre d'étude de la Performance des Entreprises University of Liège; [3]Lappeenranta University of Technology, Finland

jjpf@fe.up.pt, anne-laure.mention@list.lu, marko.torkkeli@lut.fi

Innovate or die. This observation is nothing new; yet it is probably more true and topical than ever. Over the last decades, innovation has expanded in an unprecedented manner and is now part of most firms' strategies, if not the nexus of their strategies. Originally, mainly centred around the introduction of manufactured novelties, innovation is now perceived and depicted by as many adjectives, categories and attributes as one can think of: service, organisational, process, marketing, social, environmental, strategic, business model, and so on. This extension of the nature, types and forms of innovation goes hand in hand with the development of the academic literature focusing not only on the tangibility nature of novelties, but also on the intangibility character of some, or even most, of those. Moreover, and, as the analysis of leading-edge companies shows, innovation is nowadays never restricted to a single specific form. Innovation now embraces bundles of products and services, which are subject to new business models, distributed through new channels increasingly benefitting from an accrued interaction with customers, enrolling them in the development and marketing processes. The boundaries between goods and services innovations have blurred over time, leading to an abundant literature stemming from the convergence or synthesis streams, aiming at building a unified theory for innovation, and highlighting the convergence between the typical features of product innovation (such as the tangibility and the standardization) and those of service innovation (customer-centric, less structured, intangible), as argued by e.g. Evangelista (2006) and Gallouj and Savona (2009).

This Spring Issue revolves around the assorted and multifaceted nature of the innovation, and its process, with a specific focus on service innovation and on innovation in services industries. The dominant role of services in our societies, as well as the progressive obsolescence of the traditional dichotomous categorisation of services versus manufacturing activities, gives ground for dedicating more research on the meaning of innovation in services, their multi-fold aspect, heterogeneity, and finally their impact on performance, measured in economic and also in intangible terms.

The first Academic Letter of this Issue, by Djellal and Gallouj, focuses on innovation in services, emphasising the heterogeneity of service industries, and opens the debate on the contribution of services to the entire economy. The Scholars argue that a service economy is indeed an "economy of knowledge, skills and innovation" and urge for more consideration from all stakeholders on the potential that can be realized

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from innovation in services industries.

The second Academic Letter of this issue resonates with a previous academic Letter by Hannon (2014), whose contribution focused on the so-called entrepreneurial university. The third mission of universities consists of the extension of their socio-economic impact through increased activities in knowledge and technology transfer, innovation, and the stimulation of both intra- and entre-preneurship. Such a shift in the intrinsic mission of universities requires a parallel relocation of the focal training types. In this Letter, Barro depicts the learning cube, which puts into perspective the different types of trainings, namely, the cognitive, pragmatic and executive, which respectively intensify the acquisition and development of knowledge, competencies and commitment, while mobilizing different types of processes (i.e. memorisation-reproduction, realisation-reiteration and finally conceptualisation-execution in the latter case) and corresponding to different types of societies, labelled information, knowledge and intelligence. The Scholar further emphasizes the need for executive intelligence training, where the focus is on setting goals, and enlarging the spectrum of potential learning opportunities. Interestingly, Barro elaborates on "educational profitability", using a term which usually relates to financial and economic targets whereas here, the purpose is to ensure the permanent learning attitude and its outcome for society. This notion of "educational profitability" may leave the reader wondering whether education should ever aim at reaching any other kind of profitability than a societal one, with the ultimate target of allowing everyone, in every country, to get access to education and to be trained to nurture the ability to learn continuously during one's lifetime.

The third Letter adopts a Policy Perspective and introduces the concept of system innovation, which is defined as "a radical innovation in the configuration of elements that fulfils a certain function, entailing changes in both components and architecture of the configuration" (Deak and Peredy, 2015). According to Deak and Peredy, system innovation is hard to manage due to its reliance on a fragmented set of actors and stakeholders. Yet, it remains the key to address societal challenges, ranging from mobility, housing and food supply, and the large-scale transitions and socio-economic transformations that are currently affecting our economies. The Authors also argue that the role of policymakers evolves along the phases of system innovation, from a facilitator and stimulator at the early stage of development to a catalyst for the uptake of novelties at a later stage.

In their contribution, Schueffel and Vadana provide the first identifiable literature review on open innovation in the financial services industry. Their main research focus is to explore the level of adoption of open innovation practices in the banking, wealth management and insurance industry, as reported in theoretical and empirical papers, and discuss whether open innovation should be more broadly applied in the industry. Their findings indicate that several organisational factors prevent financial service firms to apply open innovation practices, as well as monetary constraints. Nevertheless, they advocate for a wider dissemination of those practices, given the potential benefits that those can bring. Furthermore, they define and characterize innovation in this industry, debate about the natural and logical openness nature of the innovation process as well as the need for structured versus unstructured product and service development processes. Finally, their review paves the way for further research in the field of open innovation in financial services, which is certainly an area deserving more attention in the academic sphere.

In their analysis of the top twenty cited papers since 1999, and a focus on the top 20 cited and most recent published papers, over the last two years, Dennehy and Sammon unveil interesting features of this emerging ecosystem. Building on its ubiquitous nature, mobile phones have been a major driver of adoption of mobile

payment systems, especially among the unbanked populations. This peculiarity restates the importance of technology, positioned as a catalyst for new market development and the introduction of novelties aimed at improving societal welfare. Interestingly, the scholars show that the most cited publications have predominantly concentrated on both the technological, security & architecture and the social, cultural and economic standpoints from the perspectives of the merchants and the consumers. Despite their relevance in the overall ecosystem, mobile network operators, as well as regulators have been left aside from all the most widely cited articles over the 15 years under scrutiny. Another instructive finding stems from the fact that financial institutions have never been the main object / subject of research in these papers. To a large extent, mobile payment players are reshaping part of the financial industry, fragmenting it by opening it up to an entirely new set of firms. These actors are thus casting a new ecosystem that bridges the technological and the financial worlds. Furthermore, the analysis of the most recent publications indicates that the technological standpoint remains the dominant perspective, while still neglecting the financial institutions and the mobile network operators as the key actors under investigation. In our eyes, such results tend to indicate that the recent interest in leading Financial centres for FinTech firms and the boom of venture-backed technological developments in mobile payments, as well as the development of dedicated infrastructures such as specialized incubators and accelerators, have been overlooked by academic literature.

Fraczek and Klimontowicz debate of the influence of financial literacy on the decision making process of young customers in the banking industry. In their empirical study covering four different economies, they assess the level of young customer's financial literacy, and examine to what extent their level of competence and awareness is correlated with the decision making process. Their findings suggest that the basic financial knowledge has an influence exclusively on the most obvious decision making factors, such as effectiveness, level of service, costs, complexity and novelty. Decisions related to the selection of more complex financial products seem to be based on non-economic criteria, such as trust, safety, and image or are likely to be influenced by friends and families' opinions or even by emotions. The scholars conclude on the necessity to design financial education programs which would target the young generations, in a long term perspective and adopting a differentiated approach according to the initial level of financial literacy of the targeted population.

In her study on e-transparency in financial services, Railiene elaborates on the organizational changes and innovations which are required to present and communicate information to third parties using digital means. The scholar considers both mandatory and voluntary disclosures, explores the content of the information disclosed in both cases, as well as the channels used for dissemination. She concludes that, in the case of Lithuania, banks are complying with legal requirements in terms of disclosure, but that the level of voluntary information disclosure is low, and relies on means that are obsolete and poor, compared to the wealth of opportunities that new technologies can offer. She points out the need to develop an e-transparency culture in the country.

In "Advancing an innovation orientation in organisations: Insights from North American business leaders", Dobni and Klassen explore the meaning of innovation in Fortune 1000 organisations, as well as the challenges and best practices to sustain an innovation orientation. Their findings unveil six common challenges to introducing, implementing and sustaining an innovation culture. Inertia and resistance to change clearly lead the way in terms of innovation obstacles. Leadership for innovation, as well as adopting innovation as a central theme, clearly and practically sketched and communicated inside the firms, are key success factors. Persistence in the pursuit of an innovation culture as well as the existence of some governance mechanisms are

essential. The ability to demonstrate the effectiveness of the innovation program, through some quick wins, is also crucial to sustain the enthusiasm and ensure a constant commitment. Other mechanisms, such as appropriate rewarding and incentive mechanisms for innovation behaviours of employees and knowledge management systems are also highlighted as essential ingredients for ensuring a successful innovation strategy.

Concluding this Issue, Pohjola's contribution explores the role of communities of practices as a strategic instrument to expand collective learning, knowledge creation and sharing in a multinational company offering goods and services. Based on the case, the author elaborates a model for virtual cooperation in the community of practice, as well as, providing practical guidelines for effective competence creation. This contribution revolves around five main organisational development areas, embracing the strategy of the firm, the motivation to work in a community of practice according to the strategy, the knowledge creation and sharing through this instrument, while discussing the benefits of its implementation and suggesting both strategy improvements and the development of business processes.

Once again, with this Issue, the heterogeneity and multifaceted nature of innovation has surfaced. The occurrence of innovation, either intentional or serendipitous, and whatever its form, type and nature, affects our lives. It contributes to building a better future, and transcending the traditional disciplinary barriers and silos helps to go beyond the "usual suspects" innovation types, in order to create a more significant societal impact. Fifty shades of Innovation may indeed be needed to go from "Zero to One", following the title coined by Peter Thiel.

We wish you an enlightening journey in your reading of this issue of the Journal of Innovation Management.

Innovatively Yours,

João José Pinto Ferreira, Anne-Laure Mention, Marko Torkkeli
Editors

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Letter from Academia

Services and crisis: stop shooting at the ambulance!

Faridah Djellal* and Faïz Gallouj*

Professor of economics, University Lille 1 (France)
Faculty of Economics and Sociology
Cité scientifique
59 655 Villeneuve d'Ascq Cedex
Faridah.Djellal@univ-Lille1.fr, Faiz.Gallouj@univ-Lille1.fr

Abstract. Paradoxically, despite the extent of their contribution to wealth and employment, services are regularly blamed (in both political discourses and certain theoretical works) to be directly or indirectly responsible for the economic crisis. This short note aims at refuting such a paradox, arguing that the service economy is an economy of knowledge, skills and innovation.

Keywords. Services, Innovation, Crisis.

1. Introduction

In contemporary developed economies, services account for about three-quarters of wealth and jobs. Any work dedicated to these activities consistently starts with this statistical observation. One could add that one of the characteristics of the so-called emergent countries (for example, Brazil, China, etc.) is the acceleration of their tertiarization going hand in hand with their industrial success. Paradoxically, despite the extent of their contribution to wealth and employment, services are regularly blamed (in both political discourses and certain theoretical works) to be directly or indirectly responsible for the economic crisis. This short note aims at refuting such a paradox, arguing that the service economy is an economy of knowledge, skills and innovation.

2. The rise of the service economy and the establishment of the service theory

If the concept of service is ancient (it is particularly discussed by Adam Smith in the "Wealth of Nations", 1776; Jean-Baptiste Say, 1803; Frédéric Bastiat, 1848), the concept of service sector was born in the 1930s and early 1940s in relation with national accountancy issues (Clark, 1940; Fisher, 1935). It was reinforced in the 1950s and 1960s, in the United States, by the statistical works of Kuznets (1957), and especially Fuchs (1968).

To simplify, one can say that there has been a struggle between two major theses in order to explain the growth of the service sector: the post-industrial thesis, on the one hand, and the neo-industrial thesis, on the other hand. The former one, and especially Daniel Bell (1973), advocates an optimistic and idealized vision of the service society in which the tertiarization is explained by a demand law (Engel's law) and a productivity law (Fourastié's law). Post-industrial society allegedly constitutes a new stage in human progress, based on the production and consumption of services and

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the pre-eminence of a higher, white-collar tertiary sector. The neo-industrial thesis, whose figurehead is Jonathan Gershuny, is more critical regarding services. Thus for Gershuny (1978, see also Gershuny and Miles, 1983), technology and social innovation sound the death knell of the "service society" and replace it with a "self-service" society, in which consumers reject market services in favour of domestic production based on a technological system (the DVD rather than the cinema, the microwave and the pizza rather than the restaurant). For other authors belonging to the neo-industrialist perspective, services are subordinated to the manufacturing industry (the only driving force), when they are not just parasitical. These debates, which culminated in the 1970s-1980s, quietened down little by little, as services became established in an irremediable way in the socioeconomic landscape, as illustrated by the macroeconomic indicators.

3. Services and the economic crisis: the logic of the scapegoat

The fact remains that according to the old logic of the scapegoat, at every downturn in the economy, these polemics are revived. Services are then more or less explicitly designated as responsible for the economic difficulties, and especially the weakening of the industrial basis (deindustrialization). Influential politicians and distinguished economists alike (who are sometimes the same persons) establish in their statements a questionable causal relationship between tertiarization and deindustrialization, as if the opening of a hotel or a restaurant, the creation of a consulting firm, or an association could cause the closing of a plant! Therefore, to limit oneself to these two recent French examples[1], Nicolas Sarkozy, while he was Minister of Economy declared "France cannot be only an economy of banks, insurance and services". (France Info, April 16th, 2004). Similarly, Arnaud Montebourg, at the head of the Ministry of the "manufacturing recovery" declared in 2012 "Aluminium, textile industry, wood… our project is to recover all the industries which have gone abroad. The idea of France, which succeeds without plants, is finished (…). Goodbye the service economy, long life to the recovery by manufacturing, by hard material. Our country should not become a large ski area for rich men, a luxury hotel with spa". (Le Parisien, 2012). This suspicion regarding services is also regularly reflected in the literature, as illustrated by the following more or less recent titles: "Too few producers" (Bacon and Eltis, 1978), "Manufacturing matters" (Cohen and Zysman, 1987), "France without its plants" (Artus and Virard, 2011), "Reindustrialisation, I write your name" (Levet and al., 2012).

If nobody can deny the economic crisis, which characterizes most of the European countries, what is the mechanism which leads to (implicitly or explicitly) attribute this crisis to services and to shout death to these activities? In some way, Adam Smith, whose thought keeps influencing the visions of the contemporary economists (and of politicians alike), bears the responsibility for this stigmatization of services. In an analysis limited, it should be acknowledged, to the work of domestic servants, of artists and of the servants of the State, he defined services as "unproductive of any value" and as activities "perishing at the very instant of their production". However it must be acknowledged that other well-known myths systematically re-emerge at each crisis pick: the myths of the low capital intensity of services (the absence of plants), of their low productivity, of their disability to innovate, their maladjustment to exchange and international trade, the myth of the « society of services as a society of servants » (according to the expression of the philosopher André Gorz (Gorz, 1988), …

[1] It would be easy to provide examples for other countries.

4. The service society: a knowledge and innovation society

However, today more than in the past, these myths do not hold any more. It is mainly in services that ICTs, the emblematic technologies of our century are invasive. These ICTs facilitate the exchange and the international trade, productivity gains and innovation dynamics. Even if it is dual, the service society, as it is illustrated by statistics, is more an engineers' society than a society of servants: service organizations are the main employers of executives, engineers and managers. If they also recruit less skilled employees ("bad jobs" or "hamburger jobs"), is it always necessary to complain about it, especially in periods of economic difficulties? Nevertheless the services economy is also the economy of knowledge intensive services (engineering, consultancy), which are not only particularly innovative for themselves, but which constitute essential support for the innovation of other sectors (especially manufacturing sectors). As William Baumol (2002) pointed out in a very evocative paper ("Service as leaders and the leader of the services"), R-D is a service (one can add that this also holds for education). More generally, growing research works emphasise the overpowering rise of the capacity of innovation of services, or the recognition of a dynamics of innovation which was invisible to our analytical tools (characterized by a technologistic and industrialist bias). One could go a step further in the improvement of the image of services, by paradoxically considering that the service economy does not exist anymore (or is fast disappearing), that service and goods are consequently inextricably linked, as it is expressed in a certain number of recent theories: economics of functionalities (Stahel, 1997), economics of experience (Pime and Gilmore, 1999), approaches in terms of characteristics (Gallouj and Weinstein, 1997), service-dominant logic (Lusch and Vargo, 2006)…

5. Conclusion

All in all, in the search for the reasons for economic crisis, we must not choose the wrong target. If it is necessary to seriously tackle the problem of the deindustrialization of our economies, it is not by attacking services. Services are not the problem. They are conversely often a (part of the) solution. A defensive or therapeutic solution, in certain cases, in a general perspective of a social and solidarity-based economy. But also and above all, an offensive solution, taking advantage from the capacity of innovation of services in general and from the driving effect of some of them (the knowledge intensive business services) over the national innovation dynamics and economic growth. Therefore let's stop shooting at the ambulance!

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Letter from Academia

The learning cube

Senén Barro

Centro de Investigación Singular en Tecnologías de la Información (CiTIUS). University of Santiago de Compostela, Spain phone: +34 881 81 64 69

senen.barro@usc.es

Abstract. This article reflects on the concept of "Entrepreneurial University" and, in particular, on the need for university education, and in general all educational stages, to focus on students' executive intelligence, and not exclusively on cognitive and pragmatic intelligence. We present the learning cube, a conceptual model that reflects the different capacities associated to greater or lesser intensification in the training of these three types of intelligence.

Keywords: Education, Entrepreneurship, Entrepreneurial University, Executive Intelligence, Innovation, Learning Environments.

1. An entrepreneurial shift for the millenarian university

Universities are rapidly and resolutely pushing forwards with the University's so-called third mission, focused on greater interest in extending its socio-economic impact, highlighting its activity in the transmission and transfer of knowledge and technological development, innovation and entrepreneurship. Such universities are often referred to as entrepreneurial, a concept popularized above all through a number of works in this field by Burton R. Clark. While many definitions of what an "Entrepreneurial University" is, are focused on the creation of companies derived from research and development (R&D) and the impact on regional economic and business development (Etzkowitz, Webster, Gebhardt & Terra, 2000; Barmwell & Wolfe, 2008), I feel that this is a somewhat limited vision of this concept. Indeed, just as a university is a research institution if a highly relevant part of its academic and technical personnel are involved in R&D work, including the training of new researchers, a university can be classed as entrepreneurial if a significant proportion of its personnel are involved in intra-entrepreneurial (implementing innovative initiatives within the university itself), meta-entrepreneurial (stimulating and helping entrepreneurial behaviours among the university community) or entrepreneurial activities (being involved in the establishment of university companies, in particular *spin-off* and *startup* companies). In these cases, the very entrepreneurial component of the university ends up being reflected in both its educational responsibilities, helping to stimulate and train enterprising university students, and research responsibilities, facilitating the transfer of R&D results to the productive environment.

The general consensus among experts is that entrepreneurs are not born, rather they are "made". Whether there is a genetic predisposition to being an entrepreneur, as a number of scientific studies would seem to point to (Nicolaou, Shane, Cherkas, Hunkin, & Spector, 2006), or not, evidently they do not arise by spontaneous generation. Though it is not easy to teach someone how to be an entrepreneur, clearly it can be learnt, particularly if we provide young people with training in entrepreneurship throughout the entire education cycle. Education has a highly

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decisive influence, not only in the vocational aspect of entrepreneurs, which is linked more to attitude, but also in their capabilities, an issue of key importance to entrepreneurial success. Tribolet (Tribolet, 2013) holds that "educating the educators to innovate" is perhaps the biggest challenge today for universities. I agree with that if we also include entrepreneurship. Innovation and entrepreneurship are, in fact, intimately related. As Hannon asserts (Hannon, 2013): "Entrepreneurship in higher education is now recognized as important as a major driver to underpin innovation".

2. The training of executive intelligence

Clearly, we need to train our students as cultured, free and critical individuals, and their training must not be simply of a cognitive nature, but also practical, producing good professionals, capable of responding to the needs and challenges of society's development. But we also need to stimulate and educate their executive intelligence. That is, we must teach them how to act. With this in mind, the University, indeed the entire education system, needs to change its "modus docendi".

The University has evolved from training almost exclusively aptitudes (cognitive training) to also deal with certain attitudes (practical training); nonetheless, it does not appear to be so concerned with, or at least capable of, training its students for action (executive intelligence training) (Table 1).

Cognitive training focuses particularly on knowledge acquisition, in general, with no specific, direct connection with a professional area. It is a commitment to training through knowledge; possessing greater knowledge implies the improvement of an individual's aptitudes. This is the classical type of training and is clearly predominant in our classrooms today.

Pragmatic training has progressively been incorporated into teaching, initially in those countries with more advanced university systems. It is one of the objectives, for example, of the European Higher Education Area, wherein it is assumed that having more skills improves the student's attitudes. It is, so to speak, a commitment to providing students with possibilities, by opening up their option space, then with the skills to be able to implement them.

To my way of thinking, this is not simply a case of more practical training connected with professional practice; we also need to be pragmatic when selecting that which students' must be taught, whilst not losing sight of what can effectively be taught and learned within a limited time frame. As Ortega y Gasset postulated: the principle of economy in education consists in not having to teach everything that must be known, rather all that can be learned. I believe that today we need to go even further, guided by a forward-looking principle of educational profitability: teaching to facilitate the constant learning of what must be and needs to be known at any given time. This is not exactly synonymous with the often-repeated "learn how to learn" principle, since in addition to possessing a degree of autonomy for self-directed learning, there is also a need for the critical and practical selection of what has to be learned on the basis of certain objectives, whether these are set by oneself or by others. In short, it is a case of the University which already teaches how to know, to do and to be, also engaging with "teaching how to learn to take action". Learning to act and to act by creating. Resorting to a reference from the European Parliament and Council: teaching individuals to turn ideas into action —intelligence "in action", or talent, according to the Spanish philosopher, José Antonio Marina (Marina, 2012)—, something which is related with creativity, innovation and the assumption of risks, as well as with the ability to plan and manage projects with the aim of attaining the goals set.

Thus, the type of training that should most concern and occupy us, owing to its continued absence in agendas, and even more so in achievements, is the training of

executive intelligence. This is not simply a case of dealing with the student's opportunities and needs, but also of fashioning a more participative, more active society. It is true, however, that training for action, teaching students to set goals and to aspire to tackle them, is much more difficult than adhering to the previous two types of education. While cognitive training teaches us above all to handle information, and pragmatic training to acquire skills, executive intelligence teaches us to set goals, owing to which it is not simply a case of teaching different things, but of ensuring that other types of things are learned.

Table 1. Educational university: types of education/training.

Training Type	Intensifies	Teaches how to	Improves	Models	Type of process	Type of society
Cognitive	Knowledge	Handle information	Skills	Thought	Memorisation-reproduction	Information
Pragmatic	Competences	Acquire skills	Attitudes	Possibilities	Realisation-reiteration	Knowledge
Executive	Commitments	Set ourselves goals	Action	Purposes	Conceptualisation-execution	Intelligence

3. The learning cube

If learning is focused on the improvement of cognitive, pragmatic and executive intelligence, and we represent these three dimensions of intelligence in a three-dimensional space, the different learning situations that may arise for an individual can be represented in a cube, as shown in Figure 1. The point of intersection of the three axes is associated with a hypothetical individual with no cognitive, pragmatic or executive intelligence and who is thus "ignorant". Accordingly, moving along each of the axes is associated with an increase in each type of intelligence, as applicable. By way of example, possessing a developed cognitive intelligence, without pragmatic and executive intelligence, limits individuals in their capabilities, restricting them above all to handling information more or less reliably. Similarly, increased pragmatic intelligence is associated with the acquisition of skills. If this occurs with executive intelligence, it reflects a high capacity for setting goals, which in turn guide the individual's will. Obviously, those individuals who excel in one or more of the intelligence dimensions considered will possess greater capabilities in general. Those who stand out owing to their cognitive and pragmatic intelligence will be particularly good at executing tasks; those who shine owing to their cognitive and executive intelligence will be thoughtful individuals with high reasoning capacity, which will be useful, for example, in problem solving; and those who do so owing to their executive and pragmatic intelligence will have good capabilities in drawing up projects or plans. The ideal situation is obviously to be outstanding in all three intelligence dimensions considered, located at the opposite end of the line from ignorance, and which can be associated with the will and desire to create: to not only be capable of resolving problems or drawing up plans, but to bring that which has been conceived and designed to fruition.

Every time I present this "learning cube" at a conference, I ask the audience to think about each of the sides of the cube. These correspond, respectively, with the positive end of each of the axes, associated in turn with the fact that the corresponding intelligence is accentuated very significantly in a given person. Thus, the vertexes of the side of the cube associated with a highly accentuated pragmatic intelligence will

be: acquiring skills, doing, creating, designing. Similarly, the vertexes of the side of the cube identified with a well developed cognitive intelligence will be: handling information, thinking, creating, doing. And lastly, the vertexes identified with the side of the cube corresponding to outstanding executive intelligence will be: setting goals, thinking, creating and designing. Having reached this point, I then ask the audience which set of four vertexes they would choose from among these three groups as the most desirable scenario for themselves, for their children or for their students. To date, the most common choice has always been the side of the cube related with accentuated executive intelligence. In fact, this implies that they particularly value executive intelligence having primacy in individuals. This, obviously, without renouncing the cultivation of the other two types of intelligence. I found this response, which I also share, particularly striking in the setting of a pedagogical innovation congress. On that occasion, the educators present had no qualms in positioning themselves in this sense, and what is more, the vast majority of them did so. It is indeed paradoxical that we who live immersed in an educational model which does not particularly cultivate executive intelligence, something which, on the other hand, we assume without question, are so convinced that it is a type of intelligence that is particularly relevant for individuals.

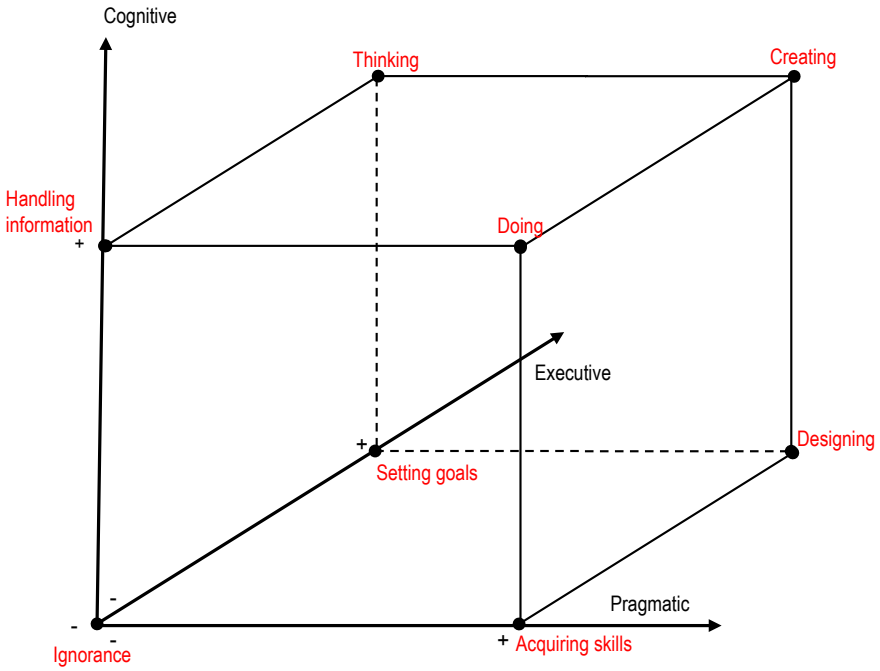

Fig. 1: Learning cube

4. Final considerations

Cognitive [intelligence] teaching has been preoccupied with teaching through a process focused on memorization-reproduction. Pragmatic [intelligence] teaching focuses on performance-repetition, which is effectively teaching tailored to problem

solving. Finally, executive [intelligence] teaching also has to focus on learning, which leads us to the notion of action (conceptualization-execution), which is of particular interest for setting ourselves goals and attempting to achieve them. All three are important. In short, faced with a problem or a challenge, we need to be capable of imagining a space of options, selecting one or more thereof in order to develop them and acquire the competences required to do so, if we do not already possess them.

At this point, the question we need to ask is how can we teach executive intelligence from the University? Taking into account that executive intelligence is driven by goals that are pursued with capabilities and effort, we should teach our students to ask the right questions, to set realistic but sufficiently ambitious objectives, and to strive to attain them, fostering leadership, self-confidence and the composure when faced with failures or drawbacks, to stimulate creative intellectual processes. When we train researchers this is clearer, if not through an explicit pedagogical method, through the treatment of our disciples and the experience they gain on their own account in a good research team. Nonetheless, this is not always true when we train them as citizens and future professionals.

The expression: "**Thinking out of the box**", is well known as a metaphor that means to think differently, unconventionally, or from a new perspective. This is a useful method for tackling certain problems, linked generally to what we often refer to as creativity. Nevertheless, as a key, professional strategy, we must endeavour to "**move forward within the learning cube**", along the line running from the "ignorance" vertex, to the one identified with "creating", coming as close as possible to the latter. Achieving this will depend above all on the education received. In fact, the "entrepreneurial personality" is formed at an early age, and it must be consolidated and supplemented in higher education through intense training in a field or discipline normally related with subsequent professional practice. Accordingly we need to modify our "*modus docendi*" not only in the University, but also in all educational stages. Otherwise entrepreneurs and intra-entrepreneurs will continue to be rare birds.

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Policy Letter

Policy framework conditions to foster "system innovation" with some illustration from an international perspective

Csaba Deák, Zoltán Peredy

National Innovation Office, Hungary
csaba.deak@nih.gov.hu, zoltan.peredy@nih.gov.hu

Abstract. "System innovation" is a multi-actor process that entails interactions between firms, consumers, policymakers, universities, supply chain actors, societal groups, media etc. In recent years, policymakers have shown growing interest in the role of innovation for addressing 'grand challenges, such as climate change, energy security, transport and resource efficiency, food safety, obesity, environmental sustainability. This interest has given rise to a debate about 'system innovation', large-scale transitions and socio-economic transformations, due to the realization that addressing grand challenges may require shifts to new systems in energy, food, mobility, and housing. System innovation is difficult to manage and steer, for it is an open, uncertain and complex process, involving multiple social groups and co-evolution between various system elements, many of which are outside the immediate control of policymakers. Furthermore, the state is not one actor, but fragmented across different domains (e.g. public sphere, private sphere, civil organisations, government) and levels (e.g. international, national, local). Policymakers cannot bring about these processes on their own, but need to invite all the aforementioned actors to work together through strategical public-private partnerships, demonstration projects, scenario workshops, vision building, public debates, and network management. So, in early phases of system innovation, policymakers tend to act as facilitator, stimulator, and chain manager. In later phases, when there is more clarity about the best technology, market demand, and infrastructure requirements, other policy instruments (e.g. regulations, standards, taxes, subsidies, financial incentives) tend to become more important, aimed at widespread deployment and uptake. Furthermore, national innovation systems (NIS) (i.e., education and training systems, science base, intellectual property rights, university-industry knowledge exchange networks, venture capital availability) provide important generic contexts in which countries address system innovation. It would be useful if future research would develop more dynamic understandings of NIS and investigate if and how NIS need to change to facilitate system innovation (e.g. through mission-oriented R&D, changes in incentive structures for academic researchers).

Keywords. NIS (National Innovation Systems), System Innovation, Policy Framework Conditions.

1. New paradigm on the horizon: the system innovation

In the 1990s, policymakers realised the importance of innovation for competitiveness and economic dynamics. Thus, the national innovation system (NIS) approach gained much attention, which conceptualised innovation as a systemic and interactive process, focused on generation and use of knowledge, and shaped by national

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institutional frameworks. Lundvall (1992: 12) defined NIS as: *"the elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge (…) located within or rooted inside the borders of a nation state"*.

However, the concept of "system innovation" is hard to define, because the term 'system' lends itself for multiple interpretations, especially when systems are seen as interdependent components or connected elements forming an integrated whole. In this context, the authors wish to rely on the NESTA Report's definition of systemic innovation, where it is described as *"an interconnected set of innovations, where each influences the other, with innovation both in parts of the system and in ways in which they interconnect"*. However, this can still be regarded as a rather vague and open definition that does not give any indication as to the type of systems under consideration. The further specification about components and relations between components (architecture) is useful, however, and similar to Henderson and Clark's (1990) typology of technical innovation: incremental, modular, architectural, and radical innovation.

Table 1. Typology of technical innovation. (Henderson and Clark, 1990:12)

	Components reinforced	**Components overturned**
Architecture unchanged (linkages between components)	*Incremental innovation*	*Modular innovation* (components are replaced without affecting other components or the system architecture)
Architecture changed	*Architectural innovation* (components stay the same, but linkages between them change)	*Radical innovation* (changes in both components and architecture)

Like Henderson and Clark (1990), some other scholars have taken a firm-level perspective on system innovation, emphasizing that certain innovations require multiple changes and collaborations between various actors. In the context of the discussion on open innovation, for instance, Maula et al. (2006: 2) define system innovation as "innovations that require significant adjustments in other parts of the business system they are embedded in".

Combining this understanding of systems (acknowledging both form and function) with Henderson and Clark's typology enables the following general definition of "system innovation":

> *System innovation is a radical innovation in the configuration of elements that fulfils a certain function, entailing changes in both components and architecture of the configuration.*

In a knowledge-based economy, the emphasis on bottom-up learning processes (Bunders et al., 1999) can help to avoid reification of systems as barriers to innovation. In an overlay of communications between industrial, academic, and administrative discourses, new options and synergies can be developed that can strengthen knowledge integration (Leydesdorff, 2012). The triple helix model distinguishes three basic types of organizations, namely, the universities as the organization training and spreading knowledge, the government research organizations which are organizations engaged in controlled strategic basic and applied research, and the innovative undertakings. Furthermore, it deals with the strength and intensity of the collaboration of these three types of institutions. Recently, the role of the society in creating knowledge and innovation has come to

the light through the growth of the knowledge-based economy and the perfection of the knowledge-based society. The members of the society and the communities are basically related to some scientific, technical or business area, which has called the attention to a fourth sector, namely the civil sector, which is also connected to the mutual relations of the universities, the industry and the government. Thus, the further development of the Triple Helix resulted in the Quadruple Helix. Furthermore, after recognizing the impact of the (natural) environment in innovation, a third innovation model, the Quintuple Helix Model was introduced. (Carayannis et al. 2012)

In recent years, policymakers have shown growing interest in the role of innovation for addressing 'grand challenges, such as climate change, energy security, transport and resource efficiency, food safety, obesity, environmental sustainability. This interest has given rise to a debate about 'system innovation', large-scale transitions and socio-economic transformations, because of the realization that addressing grand challenges may require shifts to new systems in energy, food, mobility, and housing. The new interest in system innovation is also related to:

- demographic changes and ageing;
- urban developments (revival of city centres in developed countries and rapid urbanisation in developing countries);
- new possibilities and economic opportunities related to information and communication technologies (e.g. smart homes, smart cities, smart grids);
- concerns about food systems (e.g. food scarcity, climate change impacts, food availability and prices, obesity);
- concerns about inefficiencies, reliabilities and under-investment in critical infrastructures which are essential for the functioning of societies (electricity, gas, oil, telecommunication, water, waste, sewage, public health, roads, rail, finance);
- concerns in large firms (e.g. GE, IBM) about resources, inefficiencies, and new opportunities.

The recent interest in system innovation among policy makers can be traced to several policy challenges. The first concerns the long standing issue of the effectiveness and efficiency of national innovation policies, especially in a context of increasingly globalised R&D and production systems. In most countries, innovation policies aim to address market failures around investment in R&D in order to foster productivity and growth. But the focus is often on increasing the number of innovative firms, i.e. the 'rate' of innovation, with little regard to the direction of innovation outcomes or the distributional effects of innovation on economic growth.

The second challenge that has brought system innovation to the fore is that of sustainability, which is about safeguarding the environment and mitigating the effects of climate change and includes the protection of the earth's finite natural resources, including biodiversity.

However, current configurations of large technology and innovation systems in areas like energy, food, transport, health may not deliver the change in growth models that are needed in time to avoid the bleak scenarios. This is why "system innovation" matters – to make the systems that underpin economic and human activity more resilient, equitable and sustainable for the future.

For governments, meeting these grand challenges while achieving e.g. green growth and generating employment will require policy action to facilitate systems changes on an economy wide scale. These changes amount to no less than the transformation of distribution, production and innovation systems underpinning key economic sectors. However, effective system transformation raises formidable (tremendous?) policy challenges.

Some important strategic document related to system innovation:

- The Europe 2020 Strategy by the European Commission (2010) highlights the importance of "changing tracks" and "exploring new development paths" to generate smart, sustainable and inclusive growth. It also aims to "refocus R&D and innovation policy on the challenges facing our society, such as climate change, energy and resource efficiency, health and demographic change, and proposes transformative projects such as smart grids, a European supergrid, a major green car initiative (including electric and hybrid cars), renewable energy technologies, and strategic projects in cities, ports, and logistics
- The OECD (2010) report "Eco-innovation in Industry" highlights the importance of "system innovation", which it defines as "innovation characterized by shifts in how society functions and how its needs are met" (p. 16). This is thought to include technological advances, organizational changes such as new business models, and broader institutional changes such as new policy frameworks and alternative modes of provision.
- Korea's green growth strategy, "Road To Our Future" (2009) also aims to "shift the current development paradigm" by developing green technologies, promoting green industries, and changing lifestyles in industrial sectors, transportation, energy and buildings.

2. Policy framework conditions of the system innovation

The political science literature further usefully distinguishes three policy paradigms, which differ in their view on social relationships and roles of policymakers, coordination, underpinning scientific disciplines and preferred policy instruments. It is unlikely that system innovation can be brought about by a single policy instrument from one paradigm. Instead, shaping system innovation will entail a mix of policy instruments, which may differ between countries (see below).

Table 2. The main features of the three different policy paradigms (De Bruijn et al., 1993: 22)

	Classic steering (top - down)	**Market model (bottom – up)**	**Interactive network governance**
Characterization of relationships	Hierarchical, command –and – control (government sets goals or tells actors what to do)	Autonomous (government creates incentives and ´rules of the game´, which create context for autonomous actors).	Mutually dependent interactions
Characterization of coordination processes	Government coordinates through regulations, goals, targets	Incentives and price signals coordinate self-organizing actors	Coordination through social interactions and exchange of information and resources
Foundation scientific disciplines	Classic political science	Neo-classical economy	Sociology, innovation studies, neo-institutional political science

Governance instruments	Formal rules, regulations and laws	Financial incentives (subsidies, taxes)	Learning processes, demonstration projects and experiments, network management, vision building through scenario workshops, strategic conferences, and public debates

The role of the general context for system innovation and transitions with regime actors and some policy-makers using this context to emphasise the costs of transitions, and expressing a willingness to slow things down. In many cases, innovation policies have an important role in facilitating system innovation.

System innovation can help for policy makers re-think their innovation policies in broader context. In this section, we will give a comprehensive overview about the main factors which have impact on system innovation.

- A central tenant of system innovation is that governance of the transition does not lie solely in the marketplace but in niches and regimes where institutions, regulations, consumers, and governments interact. Governance mechanisms (i.e. co-ordinated decision making, risk-sharing and co-financing among stakeholders, self-assessment and independent evaluation etc.) as a whole play an extremely important role in the success of system innovation.
- Large-scale, high-tech resources and infrastructure are great assets, which can be used for accelerating technological innovation through public-private partnerships. It provides common platform to efficiently stimulate collaborative activities with interested actors from industry, academia, and public research institutes; allowing them to save costs, time and generating synergies.
- Private investment expands an economy's productive capacity, drives job creation and income growth, and in the case of international investment, is a conduit for the local diffusion of technological and enterprise expertise and spurs domestic investment, including through the creation of local supplier linkages. Such benefits can act as a powerful force for development and poverty eradication. The benefits of investment do not necessarily accrue automatically or evenly across countries, sectors and local communities. Countries' continuous efforts to strengthen national policies and public institutions, and international co-operation, to create sound investment environments matter most.
- The education system plays a major role in system innovation. How quickly education and training systems respond to the needs of emerging niches – e.g. catering to new disciplines by founding new university departments and by standardising education - seems an important determinant of swift transitions. Human resource development has multiple dimensions, covering educational attainment, workforce skills, population health and the set of employment policies that connect people to business enterprises with appropriate skills and the ability to adapt quickly to new challenges.
- Intellectual property rights give businesses an incentive to invest in research and development, and ultimately lead to the creation of innovative products and processes. They also give the holders of such rights the confidence to share new technologies, such as in the context of joint ventures. Successful

innovations are in time diffused within and across economies, bringing higher productivity and growth. Investment is thus, both a pre-condition for the creation and diffusion of innovation activity. The intellectual property right protection instruments used by governments to encourage investment in research and development include patent and copyright laws, which give the owner, for a pre-determined period of time exclusive right to exploit the innovation. The intellectual property rights regime is not only a matter of concern to large firms and multinational enterprises with significant research and development programmes, but also to small- and medium-sized enterprises (SME). SMEs are a driving force behind innovation, yet their potential to invest in innovation activities are not always fully exploited. SMEs tend to under-utilise the intellectual property system, partly due to their lack of awareness and associated costs.

- Intellectual property including foreground and background IP can be managed flexibly according to the strategic nature of a partnership. IP policy can be limited, or open to outsiders for the exploitation and dissemination of IP, or encouraged to be shared jointly with participants. P/PPs could us specialist groups to provide professional advice on IP management issues in the form of IP working party or IP committee under the P/PP governance structure.
- Research funding reform has focused on efficiency and economic impact. Less attention has been paid to the 'branching' of scientific disciplines that is sometimes necessary to facilitate transitions. Funding opportunities for communities of researchers interested in emerging topics may be hard to come by. Social processes, such as reputation dynamics (e.g. older journals have higher citation ranks but may be conservative) may act as barriers to branching. For the branching of technology too, the formation of viable voluntary associations can be crucial to standardisation.
- The branching of science is sometimes triggered by technological developments. The history of technology is replete with examples of technological inventions that were poorly understood by the science of their time. In some cases, breakthroughs were only possible after science had 'caught up' and adequately explained the behaviour observed in new technology. Despite progress in linking science and technology, most scientific research is governed and driven by its internal dynamics.
- Corporate political strategy suggests that firms can act as political entities and use various strategies to shape policy-making processes:

  Information and framing strategy. Industries can:

  a) setup research institutes or sponsor favourable research,
  b) use this expertise to contest scientific findings and draw attention to uncertainties,
  c) report research results to influence policy debates or demonstrate the(in)feasibility of certain solutions, testify as expert witnesses in policy hearings.

  Financial incentives strategy. To influence policy makers, industries can:

  a) make contributions to politicians or political parties,
  b) pay fees for speaking at conferences,
  c) offer politicians lucrative jobs at the end of their career.

  Organised pressure strategy. Industries can mobilize networks to create pressure through:

  a) mobilization of employees, suppliers, customers, etc. who send letters

and pressure their representatives,
b) creating fake grassroots organisations ('astroturf') that claim to speak on behalf of public interests, but are funded and managed by industries, or
c) create industry associations that speak for the industry.

Direct lobbying strategy. Industries can:

a) hire lobbyists or
b) directly mobilise company executives to engage governments.

Confrontational strategies. Industries can:

a) oppose laws through litigation,
b) threaten policymakers with plant closures, layoffs, or relocation,
c) refuse to implement policies, or
d) comply only partially with policies.

Existing divisions of policy portfolios emphasise the role of national and increasingly regional levels of governance for innovation, while the city level has traditionally received little attention. However, innovation needs and complementary investments during transitions can be highly localised requiring the mobilisation of policy makers from the national, regional and, especially, the city level of governance.

There are different rationales for innovation policy, linked to different topics and disciplines. The rationales for system innovation relate to some of the specificities of system innovation, discussed above:

- *Directionality*. System innovation is about purposive transitions, oriented at solving social problems and meeting political goals. It is important to develop visions, perhaps through foresight tools or expert committees.
- *Demand articulation*. System innovation includes changes on the demand side; demand for new innovations is not waiting 'out there', but needs to be articulated; markets needs to be actively created (Sarasvathy and Dew, 2005), often in co-evolution with new technologies through a 'probe and learn' process (Lynn et al., 1996).
- *Policy coordination*: because system innovation takes place in concrete sectors or domains, (system) innovation policy needs be (horizontally) coordinated with and sectoral policies (transport, energy, agriculture). Because system innovations entail large consequential changes, support from high political levels may be needed to enhance the legitimacy and visibility of transition initiatives (e.g. embedding within and reinforcement by broader national environmental policy strategies).
- *Reflexivity*. System innovations are open-ended and uncertain processes. Evaluation and regular monitoring of public policies serve to ensure feed-back into policy design.

3. Some international example for the system innovation

Governments in different countries practise different policy styles. They are therefore likely to manage specific system innovation challenges in different ways.

Korea: green innovation (Lee, 2014)

The green innovation-based system transition has the objective to mitigate the degree of climate change and to create new growth engines for the future. Korea has the ambition to become a leader in the global market of green innovation. The Korean government is committed to using a holistic strategy to connect enterprises, local governments, local innovation actors and towns. Increasingly, civil society actors are

also integrated. Ongoing initiatives include energy plans, green towns and a smart grit roadmap. Low energy prices, hidden costs of transition programs, few market opportunities and weak consensus building with local communities pose challenges to system transition. Enabling technologies are expected to play an increasingly important role in Korean system innovation, since many of them are in the early stage of diffusion. One problem seems to be the confusing boundaries of what is green innovation.

Netherlands: biobased economy (Besseling, 2014)

The goal is to largely replace fossil oil by biomass, with a focus on chemistry and agriculture. Some materials can in fact only be produced with biofuels, e.g. policy lactic acid. The government´s main function is that of a network partner between science, chemistry, energy, agro-food, horticulture and water processing industries, while the role of society is central to the success of system innovation. Open questions concern the sustainability and ethics of biomass production. Most sectors involved in biofuel are supported through public-private partnership initiatives. Progress has been made in the development of indicators, which were analyzed in various studies. As one example, the number of network linkages of the biorefinery technology has increased significantly from 2010 until 2013.

United Kingdom: system innovation in long-term care (Mace, 2014)

In the UK, the elderly care system is shifting from residential care, based on nursing homes, to a new model which emphasizes the care of the elderly in their own homes. Both an ageing population and financial pressures force governments to re-think their approaches to elderly care. Assisted-living technology can help enable elder citizens to stay independent longer than is currently possible. The goal is to use new technology to monitor people at home and transfer the data to health and care facilities. The shift is expected to take decades, hence the project is still in an early phase. There are two main lessons learned: barriers to system change can be closely interconnected (technical, procurement, cultural values, fragmented policies), which is why policy needs to respond to this interconnectedness. Secondly, uncertainty is particularly important in this case and needs close attention to deliver successful elderly care. This makes a holistic approach necessary, as one particular political actor will not be able to overcome all challenges at once. Uncertainties, also with respect to business models, are addressed through the economic and business models of ALIP.

Hungary: system innovation in knowledge based economic transition

The National Smart Specialization Strategy (S3) is intended to provide a point of origin and a framework for the design processes and implementation related to the research and development and innovation activities. The strategy aims to transform the economy into a knowledge-based economy by development earlier innovation activities, which requires the adjustment of the governance structure. It also strengthens the specific regional conditions in order to develop a specialised RDI system which is competitive internationally and, through its resource absorption ability and resource utilisation efficiency, contributes to building an economy which is competitive in the European context. In this context, the successful implementation of S3 can be regarded as a system innovation.

The figure 1 below summarises briefly the Hungarian smart specialisations and the national priorities, which can be derived on these bases.

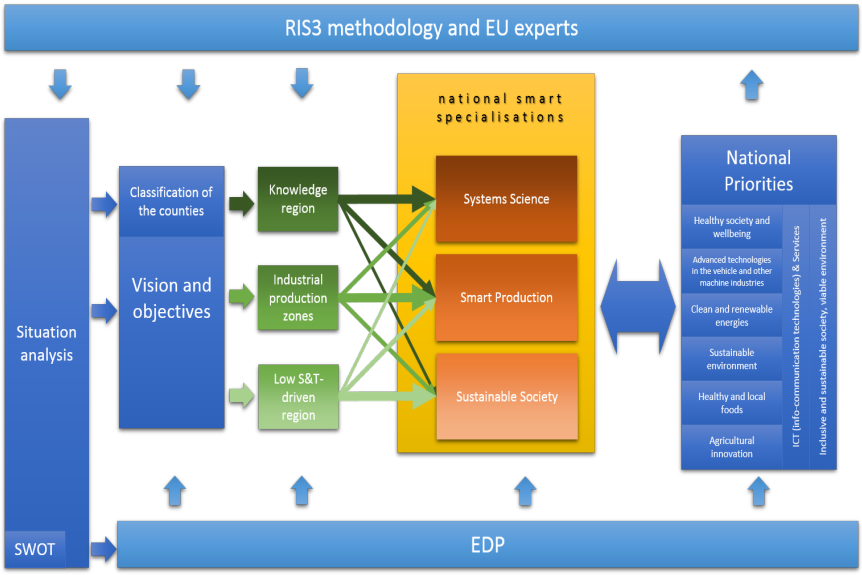

Fig 1. The Hungarian smart specializations and national priorities

Table 3. Summary of the systems science, smart production and sustainable society

Systems Science:	Emphasis is put on the systematic approaches implemented in researches. New scientific results are achieved at the border areas of disciplines, by use of world-class scientific results achieved by similar disciplines, thereby renewing the research area. Directly stemming from or based on these results, such applications will be possible to be used that are of importance to the economy or society.
Smart Production	Its focus is on product development. It is able to manufacture its own products or improve an already existing product through technological renewal in the innovation value chain, which provides a competitive advantage, in particular with the support of smart technologies and/or advanced materials.
Sustainable Society	Innovative answers are given to societal challenges. The sectors are put at an advantage by instruments of follow-up innovation, by use of the newest research results, modern technologies, devices and materials; thereby making the environment fit for life and enhancing the preserving force of the region through social innovation.

4. Conclusion

To sum up, system innovation is characterized by: 1) fundamentally different knowledge base and technical capabilities that either disrupt existing competencies and technologies or complement them leading to 'new combinations', 2) changes in consumer practices and markets, 3) changes in infrastructure and other elements (e.g. policy, cultural meaning).

The development of new knowledge and capabilities, for instance, is also crucial for system innovation. Furthermore, national innovation systems (education and training

systems, science base, intellectual property rights, university-industry knowledge exchange networks, venture capital availability) provide important generic contexts in which countries address system innovation. A drawback, however, of much of the NIS-literature is its static and comparative character. It would be useful if future research would develop more dynamic understandings of NIS and investigate if and how NIS need to change to facilitate system innovation (e.g. through mission-oriented R&D, changes in incentive structures for academic researchers).

Effective management of the system innovation will require intensified coordination between policy areas (innovation, education, tax, regulation etc.), between levels of governance (national, regional, cities), between stakeholders (public, private and voluntary organisations). Effective policy design will hinge on improved understanding of the process of transition, of barriers and facilitators. It will likely require new ways to link research to system innovation, the deployment of dedicated policy instruments and new approaches to governance (e.g. public-private partnerships, performance contracts).

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Open Innovation in the Financial Services Sector - A global literature review

Patrick Schueffel[1], Iustin Vadana[1]

[1] Institute of Finance, School of Management Fribourg, Fribourg, Switzerland
patrick.schueffel@hefr.ch, iustin.vadana@hefr.ch

Abstract. Despite the fact that it could help to overcome the current global financial crisis, the concept of open innovation is only very scarcely applied in the financial services sector. This international literature review covering the past decade provides an overview of the relevant body of literature on this topic. Two questions represent the starting point of this work: (1) Why is open innovation so scarcely applied in the banking, wealth management and insurance industries? and (2) Should the financial services sector use open innovation more widely? Our findings show that various organizational factors as well as monetary reasons prevent financial services companies from applying open innovation processes. Yet, by taking into account the potential benefits that the concept of open innovation may yield, this approach should indeed be applied more widely in the financial services industry.

Keywords. Innovation, Banking System, Financial Services, Business Management, Knowledge Management.

1. Introduction

Concepts such as open innovation (Chesbrough, 2003, 2011; Martovoy, Mention and Torkkeli, 2012; Mention and Martovoy, 2013), co-creation (Athanassopoulou and Johne, 2002; Bell and Loane, 2010; Hienerth, von Hippel and Berg Jensen, 2013; Martovoy and Dos Santos, 2012), and user-centered innovation (Athanassopoulou and Johne, 2002; Bátiz-Lazo and Woldesenbet, 2006; Bell and Loane, 2010; Jayawardhena and Foley, 2000; Oliveira and von Hippel, 2011) have raised the attention of scientists and practitioners alike, in various areas of economic activity.

At the same time, the process of innovation has become increasingly risky over the past few years (Chesbrough, 2011). One major factor in this change process is the improvement of Internet technology that resulted in the Web 2.0 (O'Reilly, 2004). This technological enhancement that facilitates the collaboration between organizations and their environments across the globe resulted in a reduced length of the product and service life cycle (Fasnacht, 2009). This "paradigm shift" (Bell and Loane, 2010, p.214) brought along by Web 2.0 (Bell and Loane, 2010; O'Reilly, 2004) introduced entirely new possibilities to the concept of open innovation (Chesbrough, 2003).

Yet, research on open service innovation largely bypassed the financial sector. Curiously enough, this domain has not been systematically investigated yet although this industry is highly important for economic growth (Jung, 1986) and employment in general (King and Levine, 1993), rendering financial innovations „a key player in the contemporary economy" (Mention and Torkkeli, 2012, p.5). Gerstlberger, Kreuzkamp and da Mota Pedrosa (2010) further highlighted the fact that the

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significance of financial services is even larger in the case of Europe. Due to the current global financial crisis, this sector of the economy has received heightened attention by policy makers and researchers across Europe (Gerstlberger et al., 2010), but nonetheless, open innovation as a potential aid to overcome the crisis has been largely neglected by academia.

At the same time, customers' expectations of financial services firms are becoming more refined and elaborated, especially with regards to the clients' personal finances (e.g., credits, insurances, retirement plans, etc.). These changes have encouraged some financial firms to adopt innovative strategies in order to diversify into new products and new markets using the help of their most sophisticated customers (Akamavi, 2005; Martovoy and Dos Santos, 2012), also known as "lead users"(Athanassopoulou and Johne, 2002; Oliveira and von Hippel, 2011). Yet, Mention and Torkkeli (2012) still observe a lack of research in the area of customer involvement.

Despite heightened emphasis on joint collaboration (KPMG, 2007; Martovoy and Dos Santos, 2012; Mention and Martovoy, 2013) and co-creation between companies and their users for the purpose of introducing innovative services, such as online banking (Akamavi, 2005; Fasnacht, 2009; Martovoy and Dos Santos, 2012; Martovoy et al., 2012; Mention and Martovoy, 2013; Oliveira and von Hippel, 2011) or specific financial products (Akamavi, 2005; Gerstlberger et al., 2010), the financial services literature still provides comparably little insight into the significance of open innovation when developing new services and products (Martovoy et al., 2012).

Notwithstanding some studies in this area, not many results have been reported on the role of open innovation processes which include the co-creation with customers, employees, suppliers, partners, communities, universities and competitors in financial firms as front-line innovators (Akamavi, 2005; Martovoy et al., 2012).

Looking at the potential of open innovation as a method to improve services and products, we consider it to be all the more important to be investigated in more detail. We therefore provide an account on the scientific findings in this field, despite the fact that the extant body of literature is relatively small. Pointing out how few studies exist on this topic may furthermore motivate other scholars to study this phenomenon more closely. This article therefore provides in a concise manner a comprehensive tour d'horizon on the current state of open innovation in the financial services sector with particular emphasis on banking.

The main objective of this article is to investigate the following two questions based on the extent of the covered body of literature: Firstly, why is open innovation so little applied in the banking, wealth management and insurance sector? Secondly, should the financial services sector use open innovation more widely?

Innovations can be classified into four main types: product, process, organizational, and marketing innovations (OECD and Eurostat, 2005). This study focuses on the service aspect of product innovation. Due to the small number of studies on open innovation in the banking, wealth management and insurance industry, other industry sectors will be explored as well in order to provide a more accurate perspective of the process of open service innovation and its potential benefits in the field of financial services.

As innovation typically not only spans across organizational boundaries but also across geographic regions (Asheim, Coenen, Moodysson and Vang, 2007; Ernst, 2002; Gertler and Levitte, 2005), this study intentionally applies a transnational view. In this literature review we therefore take into account works from scholars across the globe and covering any nation.

The structure which was chosen for this paper is the following one. First, a description of the methodology is presented that is used for selecting and analyzing

the articles on which the literature review is based. This is followed by a descriptive section which provides further information about the main articles used in this study. It provides details on the main objective of the articles, the methodological approach applied and the sample used etc. This is followed by the conceptual analysis section which sums up the main findings of those works. The paper continues by presenting the theoretical and managerial implications of this literature review. Next, limitations as well as further research directions are presented in the subsequent section followed by a section with conclusions.

2. Research Methodology

Investigating why open innovation is so scarcely applied in the banking and insurance sector and whether financial services firms could benefit from applying it more widely, this paper attempts to shed light on problems that are of both highly practical as well as theoretical nature. To identify the articles underpinning our research a combined research in online databases as well as on the Web was conducted.

First, the information was searched for in bibliographic databases (Emerald, JSTOR, Springer Link, Taylor and Francis, EBSCO as well as Wiley Online Library), using the following key words: "open innovation" (in/for banks, financial services and insurance companies), "service innovation", "user innovation" and "collaborative innovation". Second, these terms were also used to search for additional sources on the Web. These searches have proven to be relatively effective in generating a large number of articles which contained (in their title/abstracts) those keywords.

Using these documents as a starting point we determined the final number of articles to be reviewed, using five criteria proposed by Rialp, Rialp and Knight (2005). The articles had to: (1) appear in the period 2000–2014; (2) be in English, to facilitate comparison; (3) be theoretical and/or empirical academic papers; (4) be closely related to the topic in discussion, and finally (5) be major works that were systematically listed as key references in other selected studies with a quite similar focus. The time frame was selected based on two main assumptions. First, the concept of open innovation is a rather young notion in itself and most works focusing on this topic have been published after the year 2000. Second, we assumed that any research that is older than 15 years and that could be relevant to this study has been referred to and cited in subsequent studies.

We deliberately omitted any geographical restrictions in our research as this would be counter intuitive to the research topic of open innovation as the Internet nowadays provides fast and efficient means to collaborate across national borders (Van Ryssen and Godar, 2000; Wagner and Leydesdorff, 2005). Moreover, hardly any industries and markets are as globally interconnected as the financial services industry (Cetorelli and Goldberg, 2012) and the securities markets they cater for (Beine, Cosma and Vermeulen, 2010). We therefore expect that open innovation in this area would purposely be carried out across national boundaries. Accordingly, our research takes a global perspective.

In addition to bibliographic databases, alternative searches were conducted to identify supplementary information on the Internet, e.g., by using Google Scholar. These searches, which were also based on the criteria described above, were conducted in order to detect other possible sources of knowledge, such as books, press clippings, magazine articles, reports, web entries, conference papers, presentations, etc.

The above mentioned selection criteria yielded a total of 59 documents. Only 17 of them have a direct association with our research subject and were therefore identified as adding value to our analysis and enhancing the understanding of the process of open service innovation in financial services. The remaining 42 articles had a strong

focus on other research topics not directly related to open service innovation in the financial sector, such as articles about the concept of open innovation in general (Chesbrough, 2003; Dahlander and Gann, 2010; Huizingh, 2011; Lee, Park, Yoon and Park, 2010); about open innovation proclivity (Chen and Hsu, 2013; Hung and Chiang, 2010); about collaboration using the Internet (Bell and Loane, 2010; T. Huang, W. C. Wang, Y. Ken, C. Y. Tseng and C. L. Lee, 2010; O'Reilly, 2004; Sawhney, Verona and Prandelli, 2005); or about innovation policies and regulations (Asheim et al., 2007; Wagner and Leydesdorff, 2005), etc.

As we applied a rather broad approach for our review to identify relevant pieces of literature the selection of works on open innovation includes numerous articles, reports and books that demonstrate both the importance and the consideration that is currently attributed to this subject by academic and practitioners alike. Yet it also highlights the lack of information available on this topic in the financial services sector.

3. Descriptive overview

As mentioned, all analyzed sources have a strong focus on the financial services sector. Since naming conventions may differ from country to country, we explicitly included in our literature review any works that deal with retail banks, savings banks, commercial banks, corporate banks, wealth managers, investment banks and insurance companies.

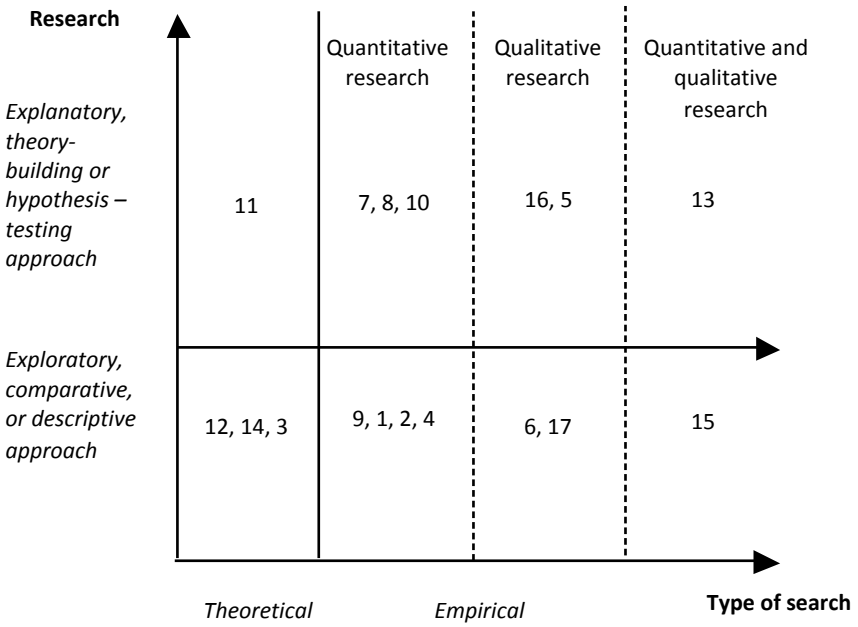
Our final sample of relevant contributions to the topic of open innovation in banking and insurance comprises 17 articles. They are the following ones:

Table 1. The sample of sources used in the literature review

Id	Author(s)	Year	Title	Publication	Publication type
1	Martovoy and Mention	2015	Patterns of new service development processes in banking	International Journal of Bank Marketing	Journal article
2	PWC	2014	Breaking the rules: Achieving breakthrough innovation in financial services	PWC	Report
3	Al-Sharieh and Mention	2013	Open Innovation And Intellectual Property: The Relationship And Its Challenges	The dark side of technological innovation	Book
4	Martovoy, De Smet, Mention and Torkkeli	2013	Role of clients in fostering innovation in services	The XXIV ISPIM Conference	Conference paper
5	De Smet, Mention and Torkkeli	2013	Involving customers in the innovation process: The acquisition capability of knowledge intensive companies	The XXIV ISPIM Conference	Conference paper
6	Martovoy and Dos Santos	2012	Co-creation and co-profiting in financial services	International Journal of Entrepreneurship and Innovation Management	Journal article

7	Martovoy, Mention and Torkkeli	2012	Role of the inbound open innovation in banking services	Public Research Centre Henri Tudor	Conference paper
8	Chaston	2011	Independent financial advisors: open innovation and business performance	The Service Industries Journal	Journal article
9	Oliveira and von Hippel	2011	Users as service innovators: The case of banking services	Research Policy	Journal article
10	Gerstlberger, Kreuzkamp and da Mota Pedrosa	2010	Innovation management in the German savings banks	Innovative Marketing	Journal article
11	Fasnacht	2009	Open Innovation in the Financial Services: Growing Through Openness, Flexibility, and Customer Integration	Springer-Verlag	Book
12	KPMG	2007	Banking on Innovation? The challenge for retail banks	KPMG	Report
13	Bátiz-Lazo and Woldesenbet	2006	The Dynamics of Product and Process Innovation in UK Banking International	International Journal of Financial Services Management	Journal article
14	Akamavi	2005	A research agenda for investigation of product innovation in the financial services sector	Journal of Services Marketing	Journal article
15	Athanasso-poulou and Johne	2002	Effective communication with lead customers in developing new banking products	International Journal of Bank Marketing	Journal article
16	Vermeulen and Dankbaar	2002	The Organisation of Product Innovation in the Financial Sector	The Service Industries Journal	Journal article
17	Jayawardhena and Foley	2000	Changes in the banking sector - the case of Internet banking in the UK	Internet Research: Electronic Networking Applications and Policy	Journal article

In order to assess the 17 theoretical and empirical studies as systematically as possible, each study was analyzed and categorized following two dimensions: 1. research focus (explanatory vs. exploratory) and 2. type of research (theoretical vs. empirical) (Rialp et al., 2005). This taxonomy was designed to obtain a high-level overview of the studies included in our sample. The results are depicted in the following paragraph.



Legend:

Id	Author(s)	Id	Author(s)
1	Martovoy and Mention, 2015	10	Gerstlberger et al., 2010
2	Wilkes et al., 2014	11	Fasnacht, 2009
3	Al-Sharieh and Mention, 2013	12	KPMG, 2007
4	Martovoy et al., 2013	13	Bátiz-Lazo and Woldesenbet, 2006
5	De Smet et al., 2013	14	Akamavi, 2005
6	Martovoy and Dos Santos, 2012	15	Athanassopoulou and Johne, 2002
7	Martovoy, et al., 2012	16	Vermeulen and Dankbaar, 2002
8	Chaston, 2011	17	Jayawardhena and Foley, 2000
9	Oliveira and von Hippel, 2011		

Fig. 1. Two dimensional analysis of sources

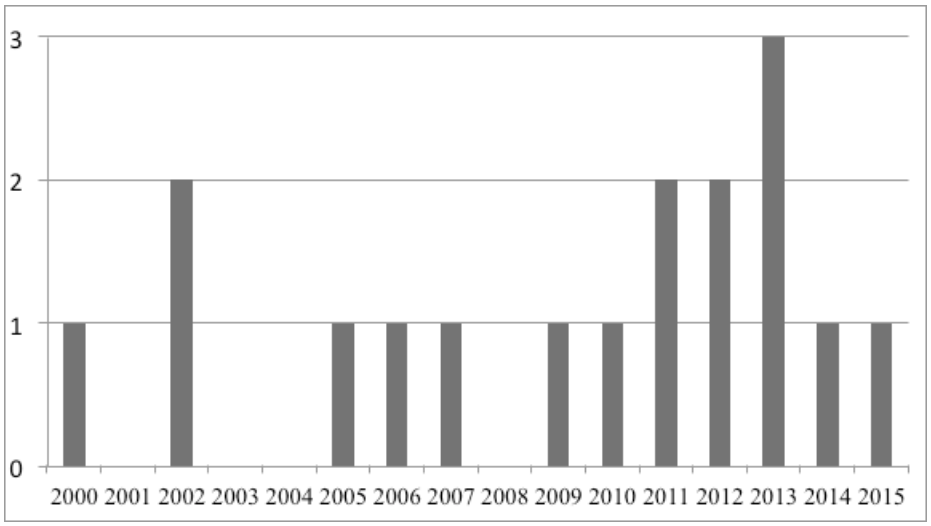


Fig. 2. Number of occurences of sources per year

The following table sums up the basic details of all 17 articles in our review sample. Further details on the conceptual findings of these articles are provided in the subsequent conceptual analysis section.

Table 2. Content overview of the sources used in the literature review

Id	Author(s)	Year	Research objective	Type of research	Sample, if empirical	Key findings
1	Martovoy and Mention	2015	Explores the patterns and openness of NSD processes in the context of financial service firms.	Empirical: dedicated survey	25 Luxembourg – based banks	Observation of four individual patterns of the NSD process. For these patterns banks strike balance between open and closed innovation.
2	PWC	2014	Explains how innovation can thrive in the long-run, to growth revenues and profitability in financial sector.	Empirical: dedicated survey	Survey of 223 financial services executives	Gaining a sustainable competitive advantage requires the right mix of innovation connected to business strategy and to management support.
3	Al-Sharieh and Mention	2013	Identifies and analyzes the challenges of IP law that are associated with inbound and outbound open innovation, and experiences made by financial firms.	Theoretical: literature review, content analysis	n/a	IP protection is capable of playing its traditional role of rewarding and stimulating innovation even in an open innovation environment.

4	Martovoy, De Smet, Mention and Torkkeli	2013	Discusses the role that clients play in innovation in services based on the example of financial services.	Empirical: dedicated survey	25 Luxembourg – based banks	Clients of financial institutions can be a valuable source of valuable and original ideas.
5	De Smet, Mention and Torkkeli	2013	Focuses on the acquisition capabilities of financial services companies in the context of open innovation.	Empirical: semi-structured interviews	5 interviews of innovation managers	The policy of promoting intrapreneurship enlarges the acquisition capability of open innovation by the financial services providers.
6	Martovoy and Dos Santos	2012	Analyzes the role of customers in financial innovation.	Empirical: semi-structured interviews	9 Luxembourg – based financial companies	Financial institutions tend to select "lead users" open for cooperation (in retail markets) and with whom they have long relations and common focus (in corporate markets).
7	Martovoy, Mention and Torkkeli	2012	Explores the sources of knowledge and the modes of its inflow for innovation in financial services.	Empirical: survey based	Based on 30 banks from Luxembourg	Members of a bank's group, suppliers, professional/industry associations and government/public are the most important external sources of knowledge for innovation.
8	Chaston	2011	Examines the involvement in open innovation of small independent financial advisors.	Empirical: hypothesis – testing approach	Surveys of 131 independent financial service advisors	Innovative and entrepreneurial oriented IFAs are more successful in business. Knowledge exchange between firms increases business performance.
9	Oliveira and von Hippel	2011	Studies the role of user-innovators in service development focusing on commercial and retail banking services.	Empirical: Cross-sectional study (screening method)	36 US firms – sample based on corporate and retail banking services	Users often develop and self-provide what they need before banks or non-bank financial service producers offer commercial services to serve their needs.
10	Gerstlber-ger, Kreuz-kamp and da Mota Pedrosa	2010	Investigates the innovation management of the European public financial services	Empirical: quantitative survey	114 Germany entities – sample based on savings banks	Top management influences the degree of innovation in financial service companies and how customers focus on

			industry.			these companies.
11	Fasnacht	2009	Investigates the innovation levels in the financial service industry	Empirical: case studies	Based on corporate, retail banks and insurance companies	Financial industry shifts from a closed to an open innovation approach. This approach is considered the best way of creating value for operational excellence and profitable growth.
12	KPMG	2007	Assesses the state of innovation in retail banking and its potential to further enable the entire sector.	Theoretical: descriptive approach	n/a	Retail bank are lagging well behind the trend in the way they manage their innovation processes.
13	Bátiz-Lazo and Woldesen-bet	2006	Analyzes the innovation behavior in service organizations.	Archival research and semi-structured interviews	11 UK firms – interviewees came from commercial and investment banks	Banks engage especially in incremental innovation and rarely in radical innovations.
14	Akamavi	2005	Provides an overview of new service development activities in the financial services sector.	Theoretical: literature review, content analysis	n/a	Companies should create value with the customer and incorporate the customer's value creation into new product development.
15	Athanas-sopoulou and Johne	2002	Identify communication skills associated with success in new service development.	Empirical: case study	9 UK-based on commercial banks	Successful companies create innovative services and products mainly following a customer-driven new service development (NSD) strategy.
16	Vermeu-len and Dankbaar	2002	Focuses on the organization of innovation processes in the financial services sector.	Empirical: semi-structured interviews	Product managers and IT personnel in 14 banks and 25 insurance companies	Most companies adopt the concept of multi-disciplinary project teams to develop new services and products; however, the idea generation stage is mainly the task of a single department.
17	Jayaward-hena and Foley	2000	Analyzes the changes brought onto the banking sector by the Internet evolution.	Empirical: case studies	Analysis of 12 UK Internet banking systems	Companies that use the Internet can reap cost savings, enhance the bank's reputation and collaborate with customers for services and products innovation.

4. Conceptual analysis

After providing a brief descriptive overview of the extant literature on open innovation in financial services followed by further details on each article, we will provide in this section a more detailed analysis on the conceptual implications of these findings. We structured this section of our research using the three key components of our research topic. Hence, we will first analyze the relevant output on the topic of innovation, followed by an investigation of the notion of openness and third by examining the specificities of these items in the context of product and service development the financial services sector.

4.1. Innovation

Definitions of the term 'innovation' are in abundance (Garcia and Calantone, 2002). For the purpose of this paper we adopt the definition of Vermeulen and Dankbaar (2002) who define innovation as a new product, process, distribution method, or a new combination of existing products (or product components), processes or distribution methods, perceived as new by the stakeholders. Defined as such, a long list of prominent innovations emerged in the financial services industry over the past decades: from the ATM to phone-initiated money transfers, and peer-to-peer lending solutions, over tablet-supported advisory to new service offerings such as art advisory (Mention and Torkkeli, 2012).

Innovation is generally accepted as being of vital importance to obtain and maintain competitive advantage in any industry sector (Bátiz-Lazo and Woldesenbet, 2006; Jayawardhena and Foley, 2000; Rehder and Levi, 2011). Building on the works of Chaston (2010), Coelho and Easingwood (2008), and Huang et al. (2010), Chaston (2011) argues that innovation along with strategies of creating new products and services can be decisive for companies to grow from an economic downturn into a position outpacing their competitors. Despite these findings, the financial services industry and especially banks are often considered to be low performers when it comes to innovation (KPMG, 2007; Rehder and Levi, 2011). The lack of innovation in this sector is generally associated with the conservatism or rigidity of this sector (KPMG, 2007), which may be explained by a lack of openness and the absence of an entrepreneurial orientation.

It is an established fact that implementing strategic innovations permits companies to respond rapidly to fast changing market opportunities (Akamavi, 2005; Chaston, 2011; Fasnacht, 2009; Rehder and Levi, 2011). Yet, according to Bátiz-Lazo and Woldesenbet (2006) and Chaston (2011) severe obstacles exist that prevent financial services firm from adopting technological innovations. Among those are resistance to change organizational structures, cultural inertia, internal politics, fear of cannibalizing existing products, fear of destroying existing competencies, satisfaction with the status quo, and in general, a lack of incentives to abandon the certainty of the current way of doing things and to embrace the uncertainty of future rewards. This posture hampering open innovation is further reinforced by a traditional approach to innovation which strives to retain ownership and confidentiality of proprietary knowledge by adopting a "closed approach" to NPD and NSD (Martovoy et al., 2012, p.12). On a related note PWC (2014) identified the following five items as the most severe innovation challenges for financial institutions: "Taking innovative ideas to

market quickly and in a scalable way", "Finding and retaining the best talent to make innovation happen", "Establishing an innovative culture internally", "Finding the right external partners to collaborate with" and "Having the right metrics to measure innovation progress and track ROI" (PWC, 2014, p.9).

As far as the financial services sector is concerned, Vermeulen and Dankbaar (2002) argue that the innovation process can be divided into four phases: (1) the idea generation stage, (2) the specification of features stage, (3) the product building stage and (4) the implementation stage. Typically, the idea generation stage is a task given to a single department (Vermeulen and Dankbaar, 2002). By doing so, financial services firms tend to neglect some significant potential sources of new ideas, most notably from front office personnel who are regularly in close contact with customers (Martovoy and Dos Santos, 2012; Rehder and Levi, 2011). The second most neglected source of new ideas is typically the outside world (Vermeulen and Dankbaar, 2002).

Chesbrough (2003) pointed out the importance of collaborating with other organizations and individuals in order to sustain business performance in today's business environment. For this type of collaborative NPD and NSP the author coined the term "open innovation" (Chesbrough, 2003). The open innovation concept is commonly defined as: "the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively" (Chesbrough, 2011, p. 69). Subsequent empirical research showed that firms adopted this type of collaboration with external entities in order to improve their innovation capabilities and to achieve competitive advantage (Chesbrough, 2011; Martovoy and Dos Santos, 2012).

According to the findings of Huang, Wang, Yun, Tseng and Lee (2010) open innovation makes firms indeed more effective in creating added-value results by leveraging many more ideas from a variety of external sources. In addition Chaston (2011) found out that involvement in open innovation represents a critical factor in the successful development of new products and technologies.

Fasnacht (2009) and Chesbrough (2011) agree that open innovation represents the most effective way of generating value required to achieve operational excellence and to generate profitable growth. According to KPMG (2007) major challenges arising from open innovation are those which emerge from disruptive innovations, whether these focus on new technology, new business processes or completely new business models. These disruptive innovations even have the potential to destroy existing businesses and are often hard to predict.

Data from the Community Innovation Survey 2008 indicates that financial institutions engage in open innovation by collaborating with external partners to build products, services and processes (Eurostat, 2012). They engage with suppliers (37%), other enterprises within the enterprise group (28%), customers (23%), consultants and research labs (21%), competitors (19%), higher education establishments (11%), and public research institutes (7%).

According to studies by Mention and Martovoy (2013) and Martovoy, et al. (2012) banks mostly rely on themselves as the most important source for knowledge leading to innovations. This is followed by other entities belonging to the same corporate group and followed by consultants, clients, and suppliers as the third. In addition private research institutes as well as other non-government organizations also play a significant role for innovation in the banking area. Martovoy and Dos Santos (2012) suggest that co-creation with customers provides the potential to develop more transparent and less complex financial services which are highly relevant to customer needs.

These results show that, generally speaking, financial institutions primarily rely on

internal sources of knowledge and a rather limited group of external knowledge providers such as other banks. Bigger crowds of clients and suppliers are perceived as a less significant source of knowledge (Martovoy et al., 2012; Mention and Martovoy, 2013).

A closer look at the internal knowledge providers reveals that the most important internal sources of knowledge for innovations are CEOs/Board of directors, frontline employees, and the dedicated NSD team (Martovoy et al., 2012). Banks furthermore attract the inflow of knowledge by the means of hiring new personnel, purchasing of machinery, and interacting informally with personnel.

Building on the works of Chesbrough (2011) as well as Martovoy and Dos Santos, 2012, Martovoy, et al. (2012) synthesize in their article the advantages that banks gain from collaborating with members of the own organization as well as external partners. Banks consider cooperating with external partners advantageous to the development of new technologies, the acquisition of new skills by employees, and to gaining access to ideas, knowledge, expertise, and technologies. Furthermore, banks tap into external knowledge sources in order to obtain knowledge on how to decrease costs, increase customer satisfaction, shorten time-to-market, identify new approaches on problem solving, and to accelerate internal innovation processes (Martovoy et al., 2012). The major disadvantage of sourcing knowledge from the outer world is considered to be the high cost associated with this type of collaboration (Martovoy et al., 2012).

Further disadvantages as presented by Martovoy et al. (2012) include a heightened dependency on partners, difficulties in balancing co-operation for innovation with daily tasks, and problems in allocating internal resources to an outside co-operation. Additional problems may arise from the question on how to fairly share contributions and outcomes of the co-operation. Moreover a persistent corporate culture at the bank may prevent the organization from acquiring existing external knowledge because of their foreign nature. Other difficulties may stem from difficulties in choosing and combining numerous alternative knowledge sources. In addition organizational resistance at the bank and the fear of losing control over a proprietary knowledge or solution as well as bureaucracy and conflicting rules among partners may hamper the usage of external knowledge. Finally, the fear of cannibalization of existing products and services may inhibit the usage of external knowledge sources (Martovoy et al., 2012).

4.2. Openness

The European financial service industry has undergone major changes over the past years largely due to the effects of the international financial crisis. In view of decreasing assets, tightening regulations and a zero interest environment, competition intensified significantly (Gerstlberger et al., 2010). In order to meet these new challenges and to benefit from these dynamic changes (Bell and Loane, 2010; Chesbrough, 2003; Gerstlberger et al., 2010; Vermeulen and Dankbaar, 2002), financial services firms ought to become more flexible. Only a heightened level of flexibility will allow them to respond to new market conditions and to incorporate innovative technologies and processes into their corporate strategies.

The challenges generated by new rules of collaboration and innovative technologies (Bátiz-Lazo and Woldesenbet, 2006) increased the pressure upon management of financial firms. Against this background it is likely that the entrepreneurial orientation and openness displayed by a firm's top management team will be a decisive factor distinguishing successful from less successful firms (Athanassopoulou and Johne, 2002; Bell and Loane, 2010; KPMG, 2007).

Previous research furthermore suggests that highly innovative financial service

companies differ from less innovative firm in the support that the top management team provides for innovation development activities (Fasnacht, 2009; Tao Huang, Wen-Cheng Wang, et al., 2010; Martovoy et al., 2012) and in the degree of customer focus displayed by the firms (Martovoy and Dos Santos, 2012; Mention and Martovoy, 2013; Sawhney et al., 2005).

According to Bátiz-Lazo and Woldesenbet (2006) there is a wide gap between managers' discourse and their ability to implement or to support innovations. In a similar vein, Bose and Sugumaran (2003) found out that a gulf exists between normative contributions by academics and those measures managers actually apply.

Bose and Sugumaran (2003) argue that the primary objectives of knowledge management have to be especially oriented towards leveraging the organization's knowledge, by creating new knowledge, promoting innovation and exploiting internal (Chaston, 2011) and external collaboration (Chesbrough, 2011; Martovoy and Dos Santos, 2012) to improve employee skills. Wong and Aspinall (2004) consider that knowledge management could be essential when an organization is based upon entrepreneurial behavior to overcome major market threats.

According to Rehder and Levi (2011) leading companies across industries encourage a culture of innovation and open entrepreneurship by using support from top-level management and structuring internal processes to promote risk-taking, networking (Martovoy and Dos Santos, 2012) and collaboration among employees (Akamavi, 2005; Athanassopoulou and Johne, 2002; Fasnacht, 2009).

The internal and external impact of regulatory changes, the developments in information communication technologies (ICT) (Bell and Loane, 2010; Chesbrough, 2011; Fasnacht, 2009), changes in customer needs and novel ways to price risk (Rehder and Levi, 2011) cause banks managers to make much needed investments to modernize infrastructure, to provide innovative products and services, and to improve operational efficiencies (Bátiz-Lazo and Woldesenbet, 2006).

Lichtenthaler (2008) assumes that the degree of organizational openness is closely related to the emphasis an organization puts on the development of radical innovations which are especially relevant for commercializing new technologies externally. Two reasons can be offered for this proposal: first, commercializing knowledge which would not otherwise be used by the firms can generate additional revenues (Bátiz-Lazo and Woldesenbet, 2006; Martovoy and Dos Santos, 2012; Wong and Aspinall, 2004). Second, open innovation is helpful for stimulating the market acceptance for a new product or service as potential users have been involved in developing them (Bell and Loane, 2010; Chesbrough, 2011; Dahlander and Gann, 2010; Hienerth et al., 2013). In this context it also has to be noted that firms which focus on radical innovation are at times not able to internally develop the required knowledge (Chaston, 2011; Lichtenthaler, 2008).

By empowering employees to participate in a firm's innovation process, innovative companies regularly take advantage of new ideas from internal sources (closed innovation) (Akamavi, 2005; Bátiz-Lazo and Woldesenbet, 2006; Chaston, 2011; Gerstlberger et al., 2010; Jayawardhena and Foley, 2000; Lee et al., 2010) and from external sources (open innovation), inviting outsiders to help resolve innovation challenges (Athanassopoulou and Johne, 2002; Chesbrough, 2003; Fasnacht, 2009; Martovoy and Dos Santos, 2012; Martovoy et al., 2012; Mention and Martovoy, 2013; Sawhney et al., 2005). Both approaches represent powerful methods for generating innovations and can result in successful initiatives.

Vermeulen and Dankbaar (2002) found out that in most financial companies organizational structures are still based on the traditional principle of functional specialization. In general, companies form multi-disciplinary project teams to develop new products (KPMG, 2007; Martovoy et al., 2012), especially when in need of

radical product innovations. The members of these teams typically come from various functionally specialized departments (Vermeulen and Dankbaar, 2002). Often it can be observed that team members predominantly act as representatives of their respective departments and thus teams oftentimes do not function as a group with a shared understanding of its mission (Tao Huang, Wen-Cheng Wang, et al., 2010; Vermeulen and Dankbaar, 2002; Wong and Aspinall, 2004). What is more, according to Vermeulen and Dankbaar (2002) managers acting as leaders or product champions are rare in the financial services sector and many problems tend to originate in a lack of communication between departments.

Fasnacht (2009) considers open innovation to be more than just a new business model to acquire intellectual property. It is rather a mindset defined by openness, flexibility, and customer integration. According to Gerstlberger et al. (2010) the role of the customer is of growing importance as one the most important external stakeholder in the innovation management process of financial services firms. This fact along with an intensified usage of information and communication technology is considered a necessary condition for a further spread of open innovation in financial services companies (Gerstlberger et al., 2010). In an empirical study among financial institutions in Luxembourg Martovoy, De Smet, Mention and Torkkeli (2013) furthermore established that clients of such firms can indeed be an important source of valuable and original ideas.

Over the years, financial companies have understood that in order to be competitive they needed to anchor their operational activities around customer needs rather than products or services (Akamavi, 2005; Chaston, 2011; Gerstlberger et al., 2010). This can be achieved by insurance companies through improved collaboration (Fasnacht, 2009; Rehder and Levi, 2011; Vermeulen and Dankbaar, 2002) and by service delivery as well as information provisioning across individuals, departments, brokers, intermediaries and agents, within and outside of the organization (Akamavi, 2005; Fasnacht, 2009). In this context a study by Mention (2015) among Luxembourg based banks revealed out that banks tend to strive for a balance between open- and closedness in their NSD process.

The Internet with its inherent openness is both an important accelerator for change and a challenge for the heavily regulated market players, especially the incumbent ones (Akamavi, 2005; Bell and Loane, 2010; Chesbrough, 2011). The IT-platform provider Cordys, for instance, argues that in the 1990's the British insurance market suffered severely from the transformation which was caused by the creation of a direct insurance market. This industry transformation led to the emergence of new, purely Web-based insurers and to the development of innovative aggregator platforms, allowing easier price comparison for consumers (Cordys, 2013).

4.3. Product and service development

In the financial services industry, new communication and collaboration technologies have not only enabled and increased the transactions among employees (Athanassopoulou and Johne, 2002; Chaston, 2011; Oliveira and von Hippel, 2011), but also between employees and customers (Gerstlberger et al., 2010; Jayawardhena and Foley, 2000; Martovoy and Dos Santos, 2012). They furthermore opened up a variety of opportunities for new processes that can be used for developing innovative services and products (Vermeulen and Dankbaar, 2002). Yet, the new communication and collaboration technologies also add to the pressure of financial services firms. Banks and insurance companies nowadays have to meet rising organizational standards, higher demands for speed and flexibility of their operations, a broadening of distribution channels, new types of competition (Vermeulen and Dankbaar, 2002), as well as novel means for creating service and products innovations (Akamavi, 2005; Bátiz-Lazo and Woldesenbet, 2006; Huizingh, 2011; Lee et al., 2010; Mention and

Martovoy, 2013).

According to the extant body of literature, both practitioners and academics regularly vary in usage of the terms "products" and "services". According to Akamavi (2005) economists use the term "products" which are also called "goods" and intangible products often labeled as "services". Some scholars consider services to be the first step in the process of developing products (Chesbrough, 2003; Sawhney et al., 2005; Vermeulen and Dankbaar, 2002). The discussion on the differentiation between goods and services has its origin in the attempts to unmistakably classify services. Akamavi (2005) describes a service as an act which is performed if one party offers another one an essentially intangible, perishable, inseparable, and heterogeneous good, which does not result in the ownership of anything. Furthermore Akamavi (2005) posits that the process of developing new unsophisticated services is strongly related to intuition, flair, hypothesis and luck. However, the author also points out that the development of new services or intangible products has often been given lower priority in service industries than has been the case with physical goods in the manufacturing sector (Akamavi, 2005).

Various authors point out that the process of new service development (NSD) is fundamentally different from new product development (NPD) (Athanassopoulou and Johne, 2002; Bátiz-Lazo and Woldesenbet, 2006; Vermeulen and Dankbaar, 2002). NPD typically represents a more rigorous and formal process involving "new product strategy, idea generation, idea screening and evaluation, business analysis, development, testing and commercialization" (Akamavi, 2005, p.369). According to Akamavi (2005), a repetitive process is recommended for designing and developing a new service rather than a linear process which is specific to tangible products. Following this approach, customers may become key clients supporting new service development by getting involved in key aspects of the process. These activities could include designing new service concepts and testing specific aspects (Athanassopoulou and Johne, 2002; Martovoy and Dos Santos, 2012; Sawhney et al., 2005; Vermeulen and Dankbaar, 2002). Customers and employees working in repetitive activities could thus play a significant role in the development of new services (Akamavi, 2005).

The NPD model includes different kinds of changes in the features of the product, such as: improvements to existing products, cost reductions, repositioning, additions to existing product lines, or style changes and new product lines (Akamavi, 2005). Martovoy, et al. (2012) sustain that the NSD model applied in financial services may well be similar to the one used by manufacturing firms. Yet, Athanassopoulou and Johne (2002) point out that the NSD process for financial services must integrate the role of the customer. Consequently, companies should no longer follow a process of creating value for the customer, but should rather investigate the possibilities of creating value with the customer (Hienerth et al., 2013; KPMG, 2007; Martovoy and Dos Santos, 2012; Oliveira and von Hippel, 2011; Sawhney et al., 2005). For an efficient NSD in the financial services sector, the customers' needs for value creation should actively be used for developing new products and services (Akamavi, 2005; Athanassopoulou and Johne, 2002; Chaston, 2011; Fasnacht, 2009; Martovoy et al., 2012; Mention and Martovoy, 2013).

Users and producers will tend to develop different types of innovations. Users generally have a more accurate and more detailed conception of their needs than producers have. Producers at the same time have a better notion of how to fulfill needs than do the clients. As a consequence, users may spark innovations that are functionally novel. By contrast, manufacturers typically tend to develop innovations that are improvements on well-known needs and that require a rich understanding of the solution for their further development (Oliveira and von Hippel, 2011).

According to Oliveira and von Hippel (2011) many of the most important new services are developed by users for their usage and are only commercialized in the

field thereafter. The authors define the term "service users" as institutional or individuals that expect to benefit from using a service (Oliveira and von Hippel, 2011). Compared to that, "service producers" are firms or people that expect to benefit from selling a service. According to Oliveira and von Hippel (2011) a service innovation is therefore "user-developed" if the developer expects to benefit from its use, and "producer-developed" if the developer expects to benefit from its sales. As examples for such user-developed new services the authors list payroll processing services, sweep services between different banking institutions, merchant services and card solutions, invoice processing services. (Oliveira and von Hippel, 2011).

Numerous authors use the term "lead users" for customers that are particularly important for innovative NSD and NPD (Martovoy et al., 2012; Oliveira and von Hippel, 2011). Lead users are described by Oliveira and Hippel (2011) as an exclusive group of the user population which is characterized by two attributes: (1) they are ahead of the bulk of the market with respect to an important trend and; (2) they expect to gain major benefits from new solutions fulfilling their needs. Their high expectations are likely to let them engage in innovation and the newly created products or services could represent significant commercialization opportunities for companies (Martovoy et al., 2012; Oliveira and von Hippel, 2011).

The concept of lead users centers around the assumption that the richest understanding of potential new services/products is held by just a few clients (Akamavi, 2005; Chesbrough, 2003, 2011; Martovoy and Dos Santos, 2012; Oliveira and von Hippel, 2011). Athanassopoulou and Johne (2002) consider that lead users are those rare members of the client population who have the strongest need for new products or services.

At the same time it is not entirely clear what roles customers play and how and when customers are appropriately involved in the NSD process (Athanassopoulou and Johne, 2002). Yet, these gaps are being narrowed by the newly emerging Web 2.0 applications, which enhance the connection and collaboration possibilities between a firm and its environment (Bell and Loane, 2010; Chesbrough, 2011; Rialp et al., 2005; Sawhney et al., 2005). Open innovation platforms help companies to use outside sources to generate and implement ideas for developing innovative (incremental or radical) (Sawhney et al., 2005) products or services (Chesbrough, 2011; Dahlander and Gann, 2010; Jayawardhena and Foley, 2000; Lee et al., 2010; Oliveira and von Hippel, 2011).

Bell and Loane (2010), Chesbrough (2011) and Fasnacht (2009) suggest that financial companies should not only involve clients in the co-creation process for NPD or NSP, but should also tap into the knowledge of other larger groups of entities such as, user communities, suppliers, partners, competitors, universities, venture capitalists and other resources.

Akamavi (2005) argues that benefits from launching new products or services should be more widely defined than just financial benefits. Potential extra benefits should be considered, such as improved company reputation, increased consumption of existing products, and a heightened awareness of the value added by the products or services as perceived not only by customers, but also by the community or the environment. This may result in developing a culture based of transparency and collaboration between the outside world and the company (Fasnacht, 2009; Martovoy et al., 2012; Mention and Martovoy, 2013).

The research results produced by Athanassopoulou and Johne (2002) emphasize the role of the development teams that are able to learn from customers and to disseminate the acquired knowledge throughout their organization and to embody it in new products (Martovoy et al., 2012). In order to accomplish this different kinds of communications methods (extensive and cross-functional communication with

customers) should be used, as well as new ICT in order to expand the ability of developer-teams to learn from the market (Athanassopoulou and Johne, 2002).

The cost and time advantages resulting from the usage of new ICT can furthermore create a competitive advantage for pioneering companies (Athanassopoulou and Johne, 2002; Bell and Loane, 2010; Dahlander and Gann, 2010; Jayawardhena and Foley, 2000; KPMG, 2007; Sawhney et al., 2005). If used intensively a wider range of communication methods (open innovation platforms, Broadcast, interactive Web sites, Webcasting, streaming audio, virtual chats etc.) would furthermore enhance the interaction between companies and their environments (Athanassopoulou and Johne, 2002; Bell and Loane, 2010; Chesbrough, 2003, 2011).

Athanassopoulou and Johne (2002) and Bátiz-Lazo and Woldesenbet (2006) moreover agree that communicating with customers during the NPD or NSD process has been identified as a critical success factor for companies in rapidly changing and highly competitive environments such as the financial services industry.

5. Discussion

After analyzing the conceptual underpinnings of the covered body of literature we will point out the implications of these research findings. In the next two sub-sections we will present the theoretical implications as well as the managerial implications that can be derived from the investigated body of literature.

5.1. Theoretical implications

Compared to other industry sectors innovation processes are in general less pronounced in the financial services industry (Akamavi, 2005; Gerstlberger et al., 2010; KPMG, 2007; Rehder and Levi, 2011). Yet, and as mentioned afore the players of this industry sector have a strong incentive to improve their innovation performance due to the adverse economic situation they are facing. In this context, legal and compliance constraints are considered to be two of the most important barriers to innovations. Yet, these obstacles have only mildly hampered innovation in other heavily regulated sectors, such as pharmaceuticals, airlines and the food industry. Hence they should not represent insurmountable hurdles to implementing a more effective innovation strategy (KPMG, 2007). Moreover Al-Sharieh and Mention (2013) established that intellectual property rights can indeed reward and stimulate innovation in an innovation environment in the banking industry.

In addition to highlighting the continued importance of open innovation, this review suggests that open innovation in itself is not a perfect solution which guarantees success (Fasnacht, 2009). However, it should be noted that the most successful and competitive companies from other sectors integrated open innovation in their corporate strategy in such a fashion that it became an integral part of doing business (KPMG, 2007).

Moreover, the literature analysis revealed that highly innovative financial service companies differ from less innovative companies in the way the top management supports the innovation development activities of the firms and in the degree of customer focus displayed by those companies (Gerstlberger et al., 2010).

It is furthermore noteworthy that companies with executives that are open to innovative approaches become excellent learners of their marketplace and customers and typically develop the ability to develop products and services around emerging needs (Athanassopoulou and Johne, 2002; KPMG, 2007; Vermeulen and Dankbaar, 2002). The openness of their staff in turn yields a clear understanding of the company's core capabilities, of its partners, and of the joint efforts that need to be

spent to develop innovative products and services (Chaston, 2011; KPMG, 2007). In this context it is important to point out that these findings suggest a linkage between individual openness (George and Zhou, 2001) and organizational openness (Laursen and Salter, 2006): the openness of individual managers apparently induces further members of staff to become more innovative themselves, which eventually renders the organizational boundaries more open.

At the same time, these companies typically use simple and effective pipeline approaches to gather, analyze, develop and then quickly launch new products and services. A prerequisite for this however, in a corporate, the core inside the company, the roles, responsibilities and culture all support innovation, while evaluation methods are used to measure and reward successful innovation (Bátiz-Lazo and Woldesenbet, 2006; Fasnacht, 2009; KPMG, 2007; Oliveira and von Hippel, 2011).

5.2. Managerial implications

The findings of our literature review are useful for managers in the financial services sector because they do not only provide an overview of the current state of affairs with regard to open innovation in the financial services industry, but also contain normative statements made by academics and practitioners alike.

By knowing the most important sources and modes of knowledge inflow, executives may want to design specific measures to facilitate innovation activity in the financial services industry (Martovoy et al., 2012).

According to KPMG's (2007) report senior executives typically do recognize their companies' limitations, especially in the light of increasing challenges faced in the future. Yet, they often do not know how to overcome these limitations (KPMG, 2007).

This literature review fleshes out some of the actions that could be taken by managers and experts from the financial services sector in order to succeed in a market which is becoming increasingly global and competitive.

Bell and Loane (2010), for example, suggest to encourage users to contribute in NSD / NPD processes using Web 2.0 technology. Web 2.0 provides firms with entirely new opportunities to create and integrate services developed by third parties. Open Innovation reinforces relationships, both internally between departments and externally with users. By the means of Web 2.0, ideas from inside as well as outside can equally be converted into new business opportunities (Bell and Loane, 2010). Managers of financial institutions could therefore, for instance, more often employ open innovation platforms and tools to engage employees and managers alike in innovation contests.

In order to efficiently use open innovation strategies, managers have to invest in resources and tools to conduct research, to develop business models, and to understand their interactions with customers, employees, suppliers, partners, communities, universities, and competitors. The insights gained from these actions will allow the firms to distinguish themselves from competitors by introducing superior products and services to the market (Akamavi, 2005; Chesbrough, 2003, 2011; Fasnacht, 2009; Martovoy et al., 2012; Mention and Martovoy, 2013; Rehder and Levi, 2011; Vermeulen and Dankbaar, 2002). Building on these findings it would be recommendable to decision makers not only to heavily use open innovation platforms and tools, but also to collect the corresponding meta-data that provides a deeper insight on who used when these tools for which purpose and with which outcomes.

Another noteworthy finding is that executive management needs to promote a culture of innovation and intrapreneurship, and to structure internal processes to

accommodate, promote and reward risk-taking, networking and collaboration among employees (Athanassopoulou and Johne, 2002; Bátiz-Lazo and Woldesenbet, 2006; Gerstlberger et al., 2010; Tao Huang, Wen-Cheng Wang, et al., 2010). In a similar vein De Smet, Mention and Torkkeli (2013) suggested a linkage between the attention paid to intrapreneurial behavior and the absorptive capacity of a financial institution. More specifically they found out that the more intrapreneurial an organization is the higher is its acquisition capability in the context of open innovation. Consequently we suggest that senior management should foster intrapreneurship by promoting new business ventures as well as by encouraging innovation, self-renewal and proactiveness (Antoncic and Hisrich, 2001).

Openness helps companies to generate new ideas not only from internal sources by enabling the employees to participate in the innovation process but also from external sources by inviting outside parties to help resolve concrete innovation challenges (Chesbrough, 2003, 2011; Fasnacht, 2009; Jayawardhena and Foley, 2000). Both processes represent important approaches and can result in successful initiatives (Rehder and Levi, 2011). The collaboration between an innovation unit at a financial services firm and outside knowledge sources guided by an innovation strategist will most likely advance new ideas and shorten time to market (Martovoy and Dos Santos, 2012; Rehder and Levi, 2011).

Very broadly speaking, Akamavi (2005) suggests that managers and executives should acknowledge the more fundamental shift from being a pure-bread service provider catering to clients to becoming a co-creator that actively co-produces services and products with its clients. They should become aware of the potential advantages they may gain by integrating a larger group of stakeholders in the NSD process. In this context Oliveira and von Hippel (2011) specifically suggest that to be on the constant look-out for self-service innovations created by lead users.

6. Conclusions and contributions

The current study is the first identifiable literature review on open innovation in the financial services industry. It has outlined the current research on open service and product innovation in the financial services sector. Moreover, it has pointed out the different knowledge sources and the modes of knowledge flow for the development of innovative services and products in this sector. Numerous academics and practitioners consider effective, fast and productive innovation strategies as key to survival for banks and insurance companies as the industry evolves (Akamavi, 2005; Bell and Loane, 2010; Chesbrough, 2011; Fasnacht, 2009; KPMG, 2007; Oliveira and von Hippel, 2011).

The literature pertaining to innovative service and product development in the financial industry shows a number of gaps and deficiencies. One of the most obvious ones is the lack of attention received from academics and practitioners regarding the role of open innovation.

The starting point of our investigation was the question of why open innovation is so scarcely applied in the financial services sector. Some articles of our sample were able to shed some light on this problem and identified organizational structure, cultural inertia and costs related to the cooperation (money, time, etc.) as the most prominent ones (Bátiz-Lazo and Woldesenbet, 2006; Chaston, 2011; Martovoy et al., 2012). The lack of consistency among managers' instructions and their failure to implement and support innovations (Bátiz-Lazo and Woldesenbet, 2006; Martovoy et al., 2012) were given as additional reasons.

The findings of this literature review show that by far not all financial companies invite customers to participate in their innovation process. One reason for the lack of

client involvement, brought forward especially by small financial institutions, is that the integration of clients in the innovation process is seen as a complex and time consuming undertaking. The second reason, provided mainly by larger firms, is that branches of international financial institutions prefer to use the knowledge and experience possessed by other affiliates belonging to the identical corporate group (Martovoy and Dos Santos, 2012; Martovoy et al., 2012). By doing so, these firms only adapt services to local needs which were otherwise developed in a different context and without the involvement of clients.

Legal and compliance constraints are also considered important barriers, but these have not been obstacles to innovation in other heavily regulated sectors and should thus not deter any bank or insurance company from implementing a more effective innovation strategy (KPMG, 2007).

The second question we attempted to answer by our literature review was the one asking whether financial services firms should use open innovation more widely. Building on the articles in our literature sample we can conclude that banks and insurance companies should indeed adopt open innovation more widely. The positive effects will be seen in various areas, such as speed and flexibility of operations and a broadening of distribution channels (Vermeulen and Dankbaar, 2002). Moreover, companies using open innovation strategies will benefit from enhanced NPD / NSD capabilities by leveraging large quantities of ideas from a variety of internal and external sources (Chaston, 2011; Huang, Wang Yun, Tseng and Lee, 2010).

There is a large discrepancy between the academic knowledge available on the topic of open innovation in banking, wealth management, and insurance and the influence that this new paradigm may have on this industry sector. In the medium run, only those financial institutions keen to quickly adapt to new market requirements and to develop profitable new services, products and efficient sales channels will succeed (KPMG, 2007). Open innovation may be one of the few chances they may have left.

7. Limitations and future research directions

No research is free of limitations and the effort to understand how the financial services sector adopts open innovation clearly has its boundaries. This paper has several limitations of which the comparably small number of articles considered is the most severe one. The rather small number of sources resulted from a rigorous selection process which ensured high relevance and comparability of the selected works for the research topic. Yet, the selection principles applied to this research may have also led to the exclusion of additional articles, which may have been useful. The results presented may thus only partially characterize the relatively unexplored field of innovation in the financial sector.

Potentially strong relationships between open innovation on the one side and business performance on the other that were identified throughout this research can only be seen as preliminary, as they are based on a relative small number of sources. In order to overcome this shortcoming, a larger longitudinal study in the financial service sector would be required in order to explore the potential business impact of open innovation on the entities of this sector.

According to the results of our study, only very few banks and insurance companies are involved in open innovation at present (Athanassopoulou and Johne, 2002; Bátiz-Lazo and Woldesenbet, 2006; Chaston, 2011; KPMG, 2007). Further research would therefore be needed to identify hard facts on why open innovation is so little applied in the banking and insurance sector. Whilst we answered the question of why open innovation is so scarcely applied in the financial services sector based on the extant of literature, more empirical work ought to be carried out with regard to this question.

Qualitative studies may yield additional valuable insight on why open innovation is still been neglected in the financial services. In a similar way additional empirical information would be desirable on the question of why some companies prefer to use a closed innovation approach and ignore the added benefits of collaborating with third parties (Chesbrough, 2003, 2011; Martovoy and Dos Santos, 2012; Martovoy et al., 2012).

Exploring the effects on openness on individual, as well as organizational and meso level holds promise for further fruitful and rewarding research. As individual openness may influence organizational openness it still remains unclear what happens on a departmental or divisional level, especially when it comes to financial institutions which are often compartmented in silos. On an organizational level it could be worthwhile investigating empirically how openness beyond clients plays out for financial institutions. This also resonates with the research call of (Mention and Torkkeli, 2012) who suggest more research to be carried out with regards to stakeholders other than clients, such as service providers, trade organizations, regulators etc.

Future research could furthermore aim at investigating which types of incentives (e.g., intrinsic or extrinsic) are most suitable to motivate corporate and retail customers to contribute to co-creation in financial services.

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Trends in mobile payments research: A literature review

Denis Dennehy, David Sammon

Business Information Systems Department
University College Cork, Cork, Ireland
d.j.dennehy@umail.ucc.ie; dsammon@afis.ucc.ie

Abstract. Mobile payments (m-payments) are increasingly being adopted by organisations as a new way of doing business in the 21st century. During the last few years, the use of m-payments as a new payment channel has resulted in an increase in the volume of literature dedicated to the topic. For this reason, this paper presents the findings of a review of literature aimed at identifying the key research themes and methodologies researched. In order to uncover these trends the authors reviewed the top twenty cited papers since 1999 and the twenty most recently published papers on m-payments since August 2014.

Keywords. Literature Review, Mobile Payments, m-Payments.

1. Introduction

A 2009 study by Deloitte predicts that by the end of 2015, seventy percent of m-payment users will be under the age of 40 and that the annual spend of these Millennials (also referred to as Generation Y) will reach $2.45 trillion dollars in the US alone. Not surprisingly, m-payment solutions are a hot topic again after a chequered history of successes and failures since the turn of the millennium. However, the m-payments landscape is complex and continues to evolve as there are several types of services (i.e. contactless, remittance), various technologies (NFC, QR Codes, SMS) that enable the m-payment service, and various stakeholders (financial institutions, mobile network operators, regulators) each with their own motivations, expectations and capabilities (Au and Kauffman, 2008; Carr, 2007; de Bel and Gâza, 2011; Pandy, 2014). While the number of diverse stakeholders and solution providers has created many opportunities in the m-payment domain, it has also led to a highly fragmented market (Pandy, 2014).

Use of a mobile device has frequently been used when defining an m-payment (Au and Kauffman, 2008; Goode, 2008; Jacob, 2007; Karnouskos & Fokus, 2004; Pousttchi, 2008) which can include laptops, tablets, and mobile phones. More recently though, de Bel and Gâza (2011, p. 12) define an m-payment as "a transfer of funds in return for a good or service, where the mobile phone is involved in both the initiation and confirmation of the payment." This definition dovetails with the view expressed by Contini et al., (2011, p. 4) who believe that there has been a shift from "enabling a mobile device to be used as a browser, accessing existing internet-based banking and retail systems….to the use of an application-enabled mobile phone as a payment form, substituting for a check, cash or a card, to eventually create a mobile wallet". It is also the definition used in the context of this study.

The ubiquity of the mobile phone provides a compelling business case and it has been an influential factor in the adoption of m-payment systems, particularly when the majority of a population is unbanked (Contini et al., 2011; FINsights, 2008; Pandy, 2014), both in developed and developing countries. Estimates by the International

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Telecommunication Union (ITU) indicate that at the end of 2011 and out of a global population of 7 billion people, there were 4.9 billion mobile phone subscriptions which represent a global penetration rate of 87%. Of that 87%, 79% were in the developing world. Not surprisingly, in order to achieve sustainable growth rates, mobile network operators and mobile service providers in general, have shifted focus from developed countries to developing countries (Longoni and Gâza, 2013). A report published in 2012 by the FDIC (Federal Deposit Insurance Corporation) estimates that at least 28.3% of US households are either unbanked or under-banked. Specifically, this report estimated that 20.1% of households (or 24 million households) were 'under-banked' and 8.2% of households (9.9 million households) were 'unbanked', an increase of 0.6% (or 821,000 households) since 2009. An analysis of m-payment initiatives from around the world by Boer and de Boer (2009, p. 13) identified the following key drivers and barriers to the adoption of m-payments (see Table 1 below).

Table 1. Adoption of m-payments: drivers and barriers

Drivers	Barriers
Offering added value for consumers merchants, mobile operators, financial institutions and other participants in the ecosystem	Complex value-chain with lack of co-operation
	Financial regulation
	Security/Risk (perception of security/risk)
	Cost
User experience, easy-to-use	Unavailability of a broad range of mobile payment capable handset
	Lack of interoperability/ lack of technology standards

When it comes to m-payments, the chicken-or-egg analogy is frequently used to describe the challenge facing merchant and consumer adoption issues. On the one hand, merchants are unwilling to invest in the systems needed to enable an m-payment transaction unless there is consumer demand. On the other hand, consumers will not use m-payment systems unless merchants accept them (Begonha et al., 2002; Contini et al., 2011; de Bel and Gâza 2011). This would suggest that in order to achieve critical mass, which is a key indicator to assessing the universality of an m-payment system (Van der Heijden, 2002), other key stakeholders in the m-payment ecosystem need to encourage higher demand from consumers and merchants (Ondrus and Lyytinen, 2011). Educating consumers about the benefits of m-payments is closely linked to consumer demand (Deloitte, 2009). However, even though m-payments have become a hot topic in recent years, it has thus far failed to attract critical levels for mass adoption by consumers and merchants (Mallat, 2006; Pousttchi et al., 2009). In order to reach critical mass, there are a number of key requirements that influence adoption, simplicity and usability, universality, interoperability, security, privacy and trust, cost, speed and cross-border payments (Antovski and Gusev, 2003; Dahlberg et al., 2007; Karnouskos and Fokus 2004; Pousttchi, 2003). Failure to address these requirements may explain why m-payments have not lived up to the hype as promised by its proponents (Damsgaard and Hedman 2009).

In contrast to traditional payment channels, m-payments are a "relatively recent phenomenon and [are] evolving so rapidly" there will often be "scant opportunity for the research community to take a collective breath, and complete a global assessment of research activities to date" (Dibbern, et al., 2004, p.13). This provides the motivation for our paper. The outputs of this paper are similar in focus to those of Dibbern et al., (2004, p.14). These are: 1) to provide a comprehensive and coherent framework for cataloguing, synthesising, and integrating existing m-payments literature; 2) to identify and categorise the various research foci; 3) to determine the underlying theoretical perspectives used to frame the analysis of the topic; 4) to

ascertain the nature of the research – that is, the methodologies utilised to conduct the analysing; and 5) distinguish any themes or trends in the literature, identifying areas of consensus as well opportunities and suggestions for future research.

The remainder of the paper is structured as follows. First, context to the m-payment ecosystem and the classification used in the framework for the literature review is presented (section 2). Following this is a synthesis of the key findings which are presented in section 3. The next section (section 4) discusses implications for academia and practice. Conclusions of the study are provided in the final section (section 5).

2. Framework for the literature review

A business ecosystem represents the interplay between multiple industries (Chesbrough and Appleyard, 2007). The delivering of an m-payment system is an example of an ecosystem as there are several stakeholders from multiple industries: consumers, merchants, mobile network operators (MNO), financial institutions, mobile device manufacturers, software and technology providers and regulators (Boer and de Boer, 2009; Contini et al., 2011; Dahlberg et al., 2007; FINsights, 2008; Karnouskos and Fokus, 2004; Lu et al., 2011; Pandy, 2014). Worth noting is that mobile device manufacturers, software providers and technology providers were categorised as 'integration partners' as these partners are usually required in an m-payment initiative, irrespective of the business model adopted. There are currently 4 types of business models in use within the context of m-payments: bank-centric, telecom-centric, collaborative or independent service provider (Chaix and Torre, 2010). Although there are advantages and disadvantages with each type of business model, it is widely accepted that delivering a compelling value proposition to all stakeholders is an influential factor when designing a sustainable m-payment business model (Boer and de Boer, 2009; de Bel and Gâza, 2011; Hedman and Kalling, 2003). M-payments are attractive to the key stakeholders identified above for various reasons (Boer and de Boer, 2009, de Bel and Gâza 2011; Deloitte, 2009) and are listed in Table 2 below.

Table 2. Attractiveness of m-payments to the various stakeholders

Stakeholder	Potential Attractions
Financial Institutions	M-payments offer financial institutions the opportunity to protect the current account and associated loan products and to avoid further disintermediation from the consumer by third parties in the online payment space. M-payments also offer financial institutions the opportunity to reduce the use of cash and its associated costs, as well as the opportunity to service unbanked and under-banked communities in a cost-effective way.
Mobile Network Operators	M-payments provide MNOs with the opportunity to recoup the cost and return on investment made in infrastructure over the past decade through increased air time and data usage by consumers. M-payments also provide MNOs with the opportunity to create new revenue streams by diversifying into new areas of business based on evolving consumer needs and behaviours.
Integration Partners	As a new technology, m-payments offer technology providers with the opportunity to act as a trusted intermediary between banks and MNOs. For mobile device manufacturers, m-payments can result in increased sales to new or existing customers.

Merchants	The benefits of m-payments for the merchant include: higher throughput at the point-of-sale (POS); the ability to send real-time messaging to consumers; and the reduction of service costs through unmanned or remote POS locations. M-payments using NFC technology can also enable merchants to create deeper customer relationship and richer individualised shopping experiences by offering value added services such as digitised loyalty cards and coupons.
Consumers	M-payments could allow consumers to make payments 'anytime, anywhere', becoming less dependent on the need to carry cash which in turn could reduce the risk of theft.
Regulators	Regulation can provide secure and efficient payments systems to delivery of value to the markets. This in turn can provide governments with the opportunity to enhance financial services, particularly for the unbanked and under-banked populations.

A literature review was carried out to determine the current state of m-payments and future directions for research. A multi-phase approach to the literature review process was adopted, following established procedures and criteria adopted by other scholars in the IS field (Dibbern et al., 2004; Dahlberg et al., 2007; Finney and Corbett, 2007; Dezdar and Sulaiman, 2009; Okoli and Schabram, 2010). The aim of this research was to build on the literature review that was conducted by Dahlberg et al., (2007) as their review of m-payment literature spanned from 1999 to 2006 and it continues to be a highly cited paper. Similar to Dahlberg et al., (2007), papers were broadly classified against the contingency theory which was used as part of the framework in their review of literature. The contingency theory of technology adoption emphasises the importance of environmental influences such as cultural, social and economic factors, which in turn impact consumer and merchant adoption. The contingency theory is useful for the classification of m-payment research as m-payment services differ in each country due to differences in payment technology infrastructure, regulation, laws, or habits (*ibid*). For example, the M-Pesa system in Kenya uses SMS technology while other m-payment systems use technologies such as QR code or NFC technology, depending on the regulations of the host country. The contingency theory of adoption suggests that there is no 'best' model for successful innovation around m-payment systems (Au and Kauffman, 2008; Ondrus et al., 2005). The underlying assumption of the contingency theory is that there is no single best way to organise and that any one way of organising is not equally effective under all conditions (Ginsberg and Venkatraman, 1985; Dahlberg et al., 2007). Three categories were identied using the contingency theory lens: 1) legal, regulatory and standardisation, 2) technology, security and payment architectures and 3) social, cultural and economic. Papers that addressed a number of these categories but none in-depth were classified as multiple categories. Using these four categories and the categories of stakeholders in an m-payment ecosystem, a 7x4 matrix was created to classify the papers in the review of the m-payments literature.

To establish trends in m-payment research, the first phase of the search was to determine the scope of the review process and source material. As m-payments have been researched since 1999 and published in a wide range of academic journals and conference proceedings, the authors focused their search on Google Scholar as it is universally accessible. Papers that were not peer-reviewed (book chapters, trade papers) were excluded from the search. Searches were based on the descriptors *'m-payments'* and *'mobile payments'* and the resulting papers were then filtered, based on the most cited between 1999 and 2014. A second search using the same descriptors was conducted to identify the dominant topics in the most recently published

academic papers over the past year (2013-2014). Papers that did not discuss m-payments in detail (mobile banking, m-commerce) were excluded.

In the second phase, the authors independently reviewed the title, abstract, discussion/conclusions to establish the main focus of the paper. Both sets of classifications were then compared and agreed by the authors. Following the methodology classification used by Dahlberg et al., (2007), papers that focused on a number of topics, but did not discuss any one topic in detail, were categorised as *'multiple categories'*. In addition, we analysed the research methodology used and classified them as *theoretical* or *empirical*. Empirical studies were then classified as *qualitative (e.g. interview)*, *quantitative (e.g. survey)*, *mixed method*, and *design*. The results of the classifications are presented in the next section.

3. Discussion of Analysis

As highlighted above, matrix based on the various stakeholders in a typical m-payment ecosystem and the contingency factors was created. The top 20 cited papers between the years 1999 and 2014 are presented in Table 3 below. The categorised papers have been numbered to correspond with the number list used in the bibliography of this paper. There were no papers that examined m-payments from a legal, regulatory and standardisation standpoint. Four papers examined adoption from a technology, security & architecture lens and its impact on both the consumer and the merchant. Using this standpoint, one paper focused solely on the merchant perspective and another paper focused solely on integration partners. Of the papers that studied m-payment adoption from the social, cultural & economic point of view, 4 focused on the consumer perspective only and 2 focused on both the merchant and consumer perspectives. Seven papers were classified as multiple categories, of which 2 studied a number of adoption factors and their impact on both the consumer and merchant. One paper focused on the consumer only while another focused on integration partners and three other papers addressed a number of adoption factors and their impact on multiple stakeholders in the m-payment ecosystem.

Table 3. Classification of the top 20 cited papers between 1999 and 2014

	Legal, Regulatory & Standardisation	Technology, Security & Architecture	Social, Cultural & Economic	Multiple Categories
Merchant	-	40,46,48,62,64	21,36	49,58
Consumer	-	40,46,62,64	10,12,19,21,36,38	49,58,59
MNO	-	-	-	-
Financial Institutions	-	-	-	
Integration Partners	-	39	-	55
Regulators	-	-	-	-
Multiple Stakeholders	-	-	-	3,14,23

These papers were also categorised as being theoretical or empirical: 9 out of 20 papers were theoretical and 11 were empirical. Table 4 below lists the methods that were used in the eleven empirical studies. Four studies used interviews only, of which one used the focus group technique, 2 used surveys only, one used design science

research (to test a technological prototype) and four studies used mixed methods (interviews and surveys). In addition, 7 of the empirical studies used a version of the Technology Adoption Model (TAM), of which 5 were case studies in India, Tanzania, Korea, USA and Germany.

Table 4. Breakdown of empirical studies in the 20 most cited papers between 1999 and 2014

Method used	Number of papers
Interviews (includes one focus group)	4
Surveys	2
Design	1
Mixed Methods (interviews and surveys)	4

Having categorised the papers of the 20 most cited papers between 1999 and 2014, the next phase of the study was to categorise the 20 most recently published papers between 2013 and 2014. Following the same process as above, the 20 most recently published papers between 2013 and 2014 were categorised and are presented in Table 5 below. The categorised papers have been numbered to correspond with the number list used in the bibliography of this paper.

Table 5. Classification of the 20 most recently published papers between 2013 and 2014

	Legal, Regulatory & Standardisation	Technology, Security & Architecture	Social, Cultural & Economic	Multiple Categories
Merchant	-	61	50	-
Consumer	-	22,35,42,43,61,63, 65,66,67,68,69	50	-
MNO	-	-	-	-
Financial Institutions	-	-	-	-
Integration Partners	-	37,56	-	-
Regulators	-	-	-	60
Multiple Stakeholders	2	30,33,51	-	72

Table 5 shows that 17 papers studied adoption issues using a technology, security or architecture standpoint, of which 11 papers focused on consumer adoption, 2 focused on the integration partners and 1 on merchants and consumers only. Three papers were classified as multiple categories as these examined adoption issues which included merchants, consumers and other stakeholders. Of the remaining 4, one examined adoption from a legal, regulatory & standardisation standpoint and its impact on a number of stakeholders while another paper examined adoption by both the consumer and merchant from a social, cultural & economic standpoint. One paper was categorised as multiple categories because it examined a number of adoption factors and considered a number of stakeholders in an m-payment ecosystem.

To gain a deeper understanding of how researchers approached their chosen research topic, papers were categorised as being theoretical or empirical. Six papers were theoretical and 14 were empirical. Table 6 below lists the methods that were used in the 14 empirical studies. Eight of the empirical studies used surveys for data gathering, 3 used design science research (to test a technological prototype), 2 studies

employed mixed methods (interviews and surveys) and one study used only the interview technique. In addition, 9 of the empirical studies used a version of the Technology Adoption Model (TAM), of which 8 of these studies were case studies in Canada, Germany, Ireland, Jordan, Portugal, Tanzania, Kenya and the UK.

Table 6. Breakdown of empirical methods in the 20 most recently published papers between 2013 and 2014

Method used	Number of papers
Interviews	1
Surveys	8
Design	3
Mixed Methods (interviews and surveys)	2

The next phase of the research was to get an integrated view of the academic research trends of both time frames, the top 20 cited papers between 1999 and 2014 and the 20 most recently published papers between 2013 and 2014. This was achieved by assigning a symbol to papers categorised in each time period and are presented in Table 7 below.

Table 7. Main focus of the theoretical and empirical papers

	Legal, Regulatory & Standardisation	Technology, Security & Architecture	Social, Cultural & Economic	Multiple Categories
Merchant	-	▲○○○○	▲○○	○○
Consumer	-	▲▲▲▲▲○○ ▲▲▲▲▲○○	▲○○○ ○○	○○○
MNO	-	-	-	-
Financial Institutions	-	-	-	-
Integration Partners	-	▲▲○	-	○
Regulators	-	-	-	▲
Multiple Stakeholders	▲	▲▲▲	-	▲○○○

○ Top 20 cited papers (1999 to 2014)

▲ 20 most recently published papers (2013/2014)

This table indicates that consumer adoption remains the most popular area of focus by researchers. Also evident is that, in contrast to previous years where studies examined consumer adoption that considered technology, security & architecture issues or social, cultural & economic issues, or multiple categories, more recent studies are focusing on technology, security & architecture issues and impact on consumer adoption. Other shifts in research foci are also evident. For example, between 2013 and 2014 only 2 papers examined adoption from both the merchant and consumer perspectives, one paper examined adoption on the context of technology, security & architecture and another paper took the social, cultural & economic approach. On the other hand, between the years 1999 and 2014, 6 papers examined adoption from both the merchant and consumer perspectives, of which 4 considered technology, security

& architecture issues and 2 considered social, cultural & economic issues.

Also evident in this table is that between 2013 and 2014 there were no papers that examined multiple categories and their impact on the merchant and/or consumer whereas between 1999 and 2014 there were 3 papers that examined multiple categories, of which two focused on both the merchant and consumer and 1 focused on the consumer perspective only. There was a significant decrease in the number of papers that examined social, cultural & economic factors and their impact on the merchant and/or consumer. Most notable is the increase in papers between 2013 and 2014 that focused on technology, security & architecture adoption issues and its impact on the integration partners or multiple stakeholders, as well as in papers that examined the impact of legal, regulatory & standardisation on multiple stakeholders. One paper examined a number of adoption issues from the perspective of the regulator. There were also fewer papers that addressed multiple categories and its impact on multiple stakeholders.

By categorising the top 20 cited papers between 1999 and 2014 and the top 20 cited papers between 2013 and 2014, as well as identifying the type of research methods used by researchers to examine m-payments, the implications for stakeholders engaged in the design and delivery of m-payment systems and for researchers interested in this research domain are discussed in the next section.

4. Managerial and Academic Implications

This study revealed that there has been a shift in focus by researchers examining the m-payment phenomenon. An example of this shift is the increase in empirical studies which suggests that m-payments as a research phenomenon has stabilised in recent years as researchers in general have established the characteristics of an m-payment system that are widely accepted by the research community. There has also been an increase in studies examining the legal, regulatory & standardisation issues and the technology, security & architecture issues and how these impact multiple stakeholders. This would indicate that these are influential factors that shape the design of the m-payment business model, as well as being a key driver for the adoption of an m-payment system. For this reason, we make the call to action that future research examines the impact of legal, regulatory & standardisation issues on the various stakeholders in the m-payment ecosystem. By answering to this call, a deeper understanding of how regulation impacts business model innovation will be gained and can be used to inform national and international level policy-makers.

Similar to the findings of the study by Dahlberg et al., (2007), consumer adoption continues to be a popular aspect of research throughout the time frames this research, specifically studies that examine technology, security & architecture adoption issues. The high number of studies that adopted TAM or a variant of this model may explain the increase in research that focused on the technology, security & architecture adoption issues and their impact on consumers. It also indicates a tradition by researchers and PhD candidates who use TAM as a model for understanding technology adoption. The increase in design-oriented research is not surprising as there has been a revival of design science research, particularly within the IS discipline. Since the essence of design science research is to build and evaluate IT artifacts with the desire to improve an environment (Hevner et al., 2004), we call to action that future research adopt this problem solving paradigm when studying m-payment systems in the real world. In doing so, researchers will be addressing to the issue of relevance which has overshadowed IS research in recent years (Agarwal and Lucas, 2005; Benbasat and Zmud, 2003), as well as providing guidance to managers who need to make decisions in the practice of management.

While there has been an increase in country specific (single case) studies, there are no studies that adopted multi-case studies (multiple countries). Hence, we make the call that future research projects should examine the adoption of m-payment systems from across multiple countries and be continent specific as this will provide empirical evidence on the characteristics of both successful and unsuccessful m-payment initiatives within these continents. This would provide researchers with an integrated understanding of m-payment adoption. Such studies would also provide guidance to the stakeholders involved in the design and delivery of an m-payment system with the opportunity to advance the adoption and use of m-payment systems from isolated single case success stories to universal m-payment systems. Having discussed the implications of the research, a limitation of the study and conclusions about the current state of academic research in the m-payment domain are present in the next and final section.

5. Limitations and Conclusions

As with all research there are limitations. A limitation of this research is that the study focused on the Google Scholar database as it is universally accessible to researchers. Including other scholarly databases would address this limitation and may even provide evidence of similar trends. Nevertheless, from the papers reviewed and categorised in this study, there has been a significant increase in m-payment research appearing in peer-reviewed journals and even greater numbers appearing in conference proceedings. Based on this evidence and the identified trends in m-payment research, the authors conclude that the study of m-payment systems can no longer be considered a fad or fashion (Baskerville and Myers, 2009) but an established research domain that will continue to receive increased attention from researchers from diverse disciplines in the coming years. By leveraging the emergent body of knowledge generated by future research projects, stakeholders engaged in the design and delivery of m-payment systems will realise the potential of m-payment systems and the universal adoption of such systems will become reality.

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Financial literacy and its influence on young customers' decision factors

Bożena Frączek, Monika Klimontowicz

Faculty of Economics, University of Economics in Katowice, Poland,
Department of Banking and Financial Markets
b.fraczek@ue.katowice.pl, mklimontowicz@ue.katowice.pl

Abstract. Dynamic changes in economic environment, especially regarding financial markets, cause the necessity to develop financial skills of societies. Despite the large number of different initiative in this field, the financial education level around the world is rather low. This state is influenced by many factors and differs in particular target group of financial education. The paper focuses on the young people as the most important group for further development of societies. The purpose of the article is to verify the influence of financial knowledge and skills on financial decision factors. It presents the results of a pilot survey which was conducted at the turn of 2013 and 2014 in selected European countries combining descriptive theoretical and empirical methods. The survey assesses the level of young customers' financial literacy, examines young customers' decision factors and correlation between them and basic financial knowledge and skills.

Keywords. Financial Literacy, Financial Education, Young Customers' Financial Needs, Financial Behaviour.

1. Introduction and theoretical background – literature review

Turbulent changes in the economic environment along with the financial crisis have caused the necessity to rethink, which factors influence customers' financial decisions and their behaviour on the financial markets. Uncertainties in business conditions and limited opportunities have led banks to face bitter, aggressive competition (Vallace and Herrick, 2009). The dynamic development of financial markets does not go hand in hand with the financial literacy of societies (Lusardi and Mitchell, 2011).

Financial literacy is usually understood as a combination of awareness, knowledge, skill, attitude and behaviour, necessary to sound financial decision-making and ultimately achieving individual financial well-being (OECD/INFE, 2011). It is conceptualized from the perspective of two dimensions. The first dimension is understanding (the personal finance knowledge) and use (the personal finance application) (Huston, 2010). The second one is the financial knowledge and informed judgments decisions (Samy et al., 2008). The definitions of the financial literacy may be divided into conceptual definitions and operational ones. The conceptual definitions try to explain abstract concepts in concrete terms. They include the following categories: knowledge of financial concepts, ability to communicate about financial concepts, aptitude in managing personal finances, skill in making appropriate financial decisions and confidence in planning effectively for future financial needs. The operational definitions convert conceptual definitions (in the form of concrete terms) into measurable criteria, as the potential results of the financial literacy concept's operational analysis (Remund, 2010). There are many ways and strategies of measuring financial literacy (Hung et al., 2009). Despite that, there is still a lacking of the satisfactory operational definitions, which help to find the standardized way towards its measurement. The standardized measurement of

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financial literacy is constantly one of the most important research priorities (Schuchardt et al., 2009).

While examining financial literacy, it is necessary to discuss about financial capability. That kind of capability is the result of the development of individuals' financial knowledge and skills. This capability gains access to financial instruments and institutions (Braunstein and Welch, 2002). Many authors underline that it plays an even more important role than financial literacy itself (Johnson and Sherraden, 2007).

Both terms, financial literacy and financial capability, are strictly connected with financial education, which is considered to be the solution to the problem of illiteracy. Financial education programs motivate individuals to develop their skills and capabilities and, as a result, societies to improve their level of literacy (Kozup and Hogarth, 2008; Williams, 2007). They are especially important because the lack of sufficient financial knowledge affects the well-being of individual households (Rooij et al., 2011) along with the national and global economy. Financial literacy's deficiencies cause ineffective money management. Furthermore, they also result in wrong consumer financial behaviours (Atkinson and Messy, 2012; Bumcort et al., 2011; Lusardi and Mitchell, 2011; Xu and Zia, 2012). Both can dramatically affect the financial health of local communities, as well as, the national and regional markets. The knowledge and information asymmetry between banks and customers is thought to be one of the reasons of the last worldwide financial crisis (Capiga et al., 2010; Crotty, 2009; Pyka, 2010). The determination of banks to raise profits (Blundell-Wignall et al., 2008), combined with severe competition in the banking service industry, results in the development of plenty of new financial products and loyalty programs, aiming at attracting customers. Almost all banks declare that they want to satisfy customers and fulfil their needs by preparing offers that match their expectations. As a result, financial products and services become more and more complex. The diversity of financial products and the large amount of different information that should be analysed and taken into account, cause rational financial decision-making become more and more difficult for customers, especially for the youngest ones. Youth is a very important target group for financial education programmes as well as for banks. Banks have appreciated their importance in the process of building long-term relationships. Banks' sales managers know that youth's commitment and loyalty leads to repeated buying in the future and long-term competitive advantage[1].

That is why teaching them how to take an informed decision becomes so essential today. The financial education, as the process by which people improve their financial literacy, may influence their financial awareness, while choosing financial services and enhancing the knowledge on various types of products and their features. Additionally, financial education enables the change of attitudes and patterns of financial behaviours and the understanding of customers' rights and obligations. It is necessary to make rational, informed financial decisions.

The importance of financial literacy has already been noticed by scientists and researchers (Frączek, 2014). They used to examine financial literacy from two perspectives: socio-demographic factors influencing its level or its results for society, economy and financial markets. The first group of research focused on the following factors: gender (Berggren and Gonzalez, 2010; OECD/INFE, 2013), income and level of education (Atkinson and Messy, 2012; Spataro and Corsini, 2013), cultural norms (Nannyanzi, 2009), motivation (Mandell and Klein, 2007) and age (Atkinson, 2007;

[1] Competitive advantage is understood as the ability or the circumstances, which let a bank gain the advantage over other banks and financial institutions (Aaker, 1989; Barney, 1991; Fahey, 1989; Harasim, 2005; Korenik 2006; Pietrzak, 2003; Porter, 1998; Rue and Holland, 1986).

Atkinson and Messy, 2012; Chen and Volpe, 1998; Finke et al., 2011; Lusardi et al., 2010). The second group studied the connection between the level of financial literacy and the general well-being of societies (Mahdzan and Tabiani, 2013; Mandell and Klein, 2009; Nannyanzi, 2009; Spataro and Corsini, 2013).

The variety of definitions causes the necessity to precisely outline the perspective, which will be taken into account in this research. This paper follows the OECD definition and examines the financial literacy from the individuals' perspective. A literature review and analysis of the surveys' results was the foundation of determining the research gap. None of the abovementioned research examines the correlation between the level of financial knowledge and skills (understood as financial literacy) and the criteria taken into account in the process of making informed decisions while choosing financial products. Thus, the purpose of the paper is to verify the influence of financial knowledge and skills on youth' financial decision factors. Analysing the results of pilot field research the following research questions were asked:

- What is the level of youth' financial knowledge and skills compared to other target groups of financial education?
- What financial products are consciously chosen by young people?
- What factors are taken into account in the process of choosing financial products?
- Which youth's decision factors can be treated as informed ones?
- To what extent do informed decision factors influence youth's behaviour in the banking market?

The following research hypotheses were formulated:

H1: The level of the research target group's financial knowledge is higher than the average level of financial knowledge in society.
H2: Financial products and services used by youth correspond to their needs and expectations.
H3: The most important decision factor for young customers is the price of financial products.
H4: Youth use only basic financial knowledge in the process of assessing financial products and services.
H5: Despite the higher level of financial knowledge, the research target group's decisions factors cannot be treated as informed ones.

Corroborating the relation between the level of financial literacy and financial decisions' determinants could be crucial for further financial education's programs. Many initiatives, conducted so far by different stakeholders, have not yet brought the expected results and it is commonly known that the level of financial literacy is still rather low in the society. The research results will also be important for banks and other financial institutions. The determination of the most important criteria of financial products' choice lets banks understand this specific target group and match banks' market behaviour to their needs. The results will also have some implications for young people. If they realize how easily they are influenced and how unreasonable they are, they will probably be more motivated to gain financial knowledge in the nearest future.

2. Research methodology

The main purpose of the research is to assess the young customers' financial knowledge and to examine if there is any correlation between the level of knowledge

and the youth's behaviour in the banking market.

The two-step methodology is designed to achieve the research goals. The first step was based on an investigation of the current literature (academic and non-academic) on financial literacy, reports and historical data concerning the level of financial literacy and customers' market behaviour. As a result of the analysis of the literature, it was decided to focus on youth as a specific target group for educational programmes and banks. Youth is current and potential participants of the financial market; especially the banking segment. The results of this step present this target group underlining the role of young people in today's world and the future financial market. The profile of young people, their features (important from the perspective of the functioning and the development of the financial market), typical financial patterns and financial behaviour are also described. Additionally, the descriptive analysis of determinants of consumer satisfaction in the aspect of the hierarchy of consumers' financial needs were conducted.

The second step was an empirical survey. The data collected during the field research was compared to results of former research. The empirical study is still in progress. The article presents the results of the pilot survey that was conducted at the turn of 2013 and 2014 in the group of 181 young people at the age up to 24. The group consists of students of economy and business in four countries. The countries of Finland (37 people), Latvia (57 people), Spain (41 people) and Poland (46 people) were chosen as representatives of different banking markets countries. These countries were chosen from the perspective of competition measured by markets' concentration ratio (see fig. 1).

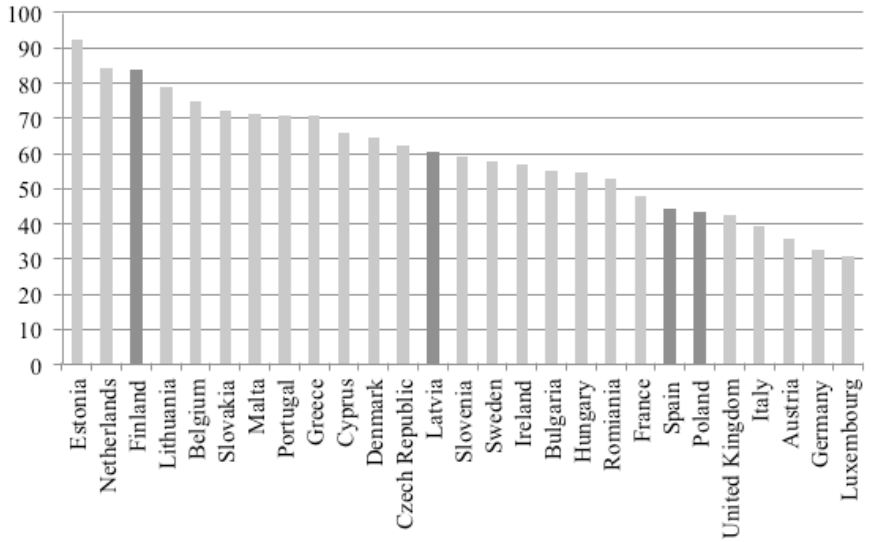

Fig. 1. European banking markets' concentration ratio (CR5) in 2010 (ECB 2012, 1)

Finland represents a highly concentrated market. Latvia is one of the countries in the middle of the scale. Spain is one of the banking markets with a low level of concentration ratio. Poland was chosen because today its banking market is one of the most interesting markets in Europe. Despite the global financial crisis, it generates increasing incomes. In 2011 the net profit of banks in Poland was 15, 7 billion PLN with revenues over 90,9 billion PLN, which is the best result in history. Furthermore, the rate of equity (ROE) was 12% and capital adequacy ratio – 13%. The figures from

2010-2011, show an increasing volume of personal customers' deposits and credits. The interest rates were kept at a relatively low level with the concurrent decrease of customers' required reserves (Deloitte 2012, p. 5). These countries also defer the way the banking market is developing. The authors realise that the countries' selection could be thought as one of the research limitation. During the realisation of complex research, it is planned to broaden the range of countries.

The data was collected by employing a PAPI method (personal and pen interviews) using two kinds of questionnaires. Firstly, the questionnaire focused on the level of financial literacy and was previously tested and used in research covering many countries (Atkinson and Messy, 2012). Some of the questions were also used in other coordinated research (Xu and Zia, 2012). Using the same questionnaire gave the opportunity to compare the general level of financial literacy of all populations in different countries with young people. The target group consists of youth studying economy and business because the purpose was to examine the role of informed decision-making. It was assumed that they are equipped with a basic level of financial literacy. This questionnaire included questions that verify basic knowledge of key financial concepts and the ability to apply numerical skills in financial situations (e.g. simple and compound interest, risk and return, and diversification of risk). The second questionnaire was prepared on the basis of a literature review and focuses on financial decisions' factors in the process of choosing banks and financial products. A seven-point Likert scale was applied starting from zero, which indicated that the factor is not important at all, to six, which meant the huge importance. Reliability analysis, measured with Cronbach's alpha[2], showed adequate reliability levels for all of the scores.

The questionnaires were used to collect the information about the level of financial literacy, the scale of using the basic financial products and the criteria of financial products' choice used by young people that study economics. The goals of the research were:

- assessing the young customers' financial knowledge and skills (percentages of correct answers),
- the comparison of the field results with results in the level of financial literacy of societies in different country taking into account the fact that the level of financial literacy follows an inverted U-shape with respect to age,
- determining the financial products and services used by youth comprising target group (percentage of respondents who have the product),
- specifying the young customers' decision factors (criteria) influencing financial decision making (percentage of product owners' indications),
- the exploration of the relationship between the level of respondents' financial literacy and their expectations concerning banking products and services (Spearman's rank correlation coefficient). The research of this relationship is conducted by the prism of the criteria of choosing the financial products, used by respondents (young people).

To discover the strength of the relationship between two sets of data (level of financial literacy and expectations concerning banking products and services by the prism of the criteria in a particular country), the Spearman's Rank Correlation Coefficient[3] was used. In this research, only the banking account and the credit cards

[2] Cronbach's alpha is a coefficient of internal consistency. It is commonly used as an estimate of the reliability of a test for a sample of examinees.

[3] The ranking of the countries in the level of financial literacy was achieved by giving the ranking '1' for the biggest number and '2' for the second biggest value and so on in each row of

were applied as the most popular banking products.

3. Results

3.1. Youth as a very important target group of financial education

Although both measuring the level of financial literacy and the activities on financial education are usually addressed to the general public, proper target groups are defined to increase the efficiency of financial education. Evidence is, among others, national strategies on financial education developed in many countries (OECD, 2013). The most often specified target group is youth.[4].

In many cases, the two terms youth and young people are used interchangeably. The United Nations, mainly for statistical purposes, defines those persons as people between the age of 15 and 24 (UN, 2014). Taking into account this definition, almost half of all people in the world is under the age of 25 (44, 2% in 2010). Individuals between the age of 15 and 24, make up over one-sixth of the world's population (17, 7%). The youth is a very specific target group. They are in transition from financial dependence to financial independence. It should be noted that in many countries at this moment the consumption among children and youth is continuously rising (Sherraden et al., 2011). It was repeatedly found that, concerning age, financial literacy follows an inverted U-shape. It means that financial knowledge, skills and awareness are lower among younger and older individuals in comparison to middle-aged adults (Atkinson and Messy, 2012). It is also documented that a U-shaped age-related curve is reflected in the prices people pay for particular financial choices, e.g. use of credit cards; home equity loans and lines of credit; auto loans; mortgages; small business credit cards (Agarwal et al., 2009). It was proved that age is also related to risk tolerance, which means that, generally, risk tolerance decreases as people get older. However, there is also the so-called aging effect-after reaching a certain age the risk aversion increases (Yao et al., 2011). These findings are very important, because individual willingness to take financial risks affects financial preferences and needs. Concurrently it also affects behaviour on financial markets including spending money, savings, portfolio decisions.

Banks all over the world appreciated the role of youth as customers, and they offer them many products and services. Today's young people are making more and more financial decisions at younger ages. Their role in society is changing, and they have new-economic responsibilities. On the one hand, contemporary young people have access to more money and credit. More and more teenagers have a high spending rate when using cash, checks, or credit cards, and the age at which young adults receive credit cards is dropping (Pinto et al., 2005). On the other hand, unfortunately it does not mean that their financial literacy is sufficient. They are not ready to the complexity of the financial world and full of threats the modern financial lives. Many students are not even well prepared for personal money management e.g. on campus (KeyBank and Harris Interactive, 2006). As a result, they quite often make their financial decision on the basis of advertisements and promotions, rather than on

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the results on financial literacy presented in the table 2. Later, all of it was summed up and eventually the final ranking was created. The alternative way was by summarising all results (percentage of positive answers) at the level of each country and then ranking them. The result is very similar.

[4] Other specified target groups are: children, selection of adults, women including elderly and poor /extremely poor women, young people who do not attend schools, the unemployed, people with loans, socially disadvantaged individuals etc.

calculations and financial analysis. Research outcomes show that hundreds of millions of young people in the world are lacking financial knowledge, skills as well as financial management training. Thus, their financial literacy is rather poor (OECD/PISA, 2012; Sherraden et al., 2011). They usually receive poor scores concerning knowledge about risk, global investing, stock market valuation, impact of interest rate changes and tax planning (Volpe et al., 1996). A lack of knowledge does not enable them to make reasonable financial decisions and choose the best banks' offers. Many students who achieved lower financial literacy score cannot use their checking accounts and credit cards effectively (Mandell, 2006; May, 2005). Based on research conducted in America also show that student's ability to recognize the most dangerous aspects of credit cards lies, as well as, into the fact that they have a poorer understanding of the tax system in the aspect of the taxation of interest on savings accounts (Mandell, 2008). Today, many developed societies are less savings-oriented and more consumption-oriented than they were in the past (Federal Reserve Bank of San Francisco, 2005). This influences the negative savings rate and insufficient savings for retirement in many societies (Guidolin and La Jeunesse, 2007).

The lack of the appropriate level of financial literacy and adequate financial education of youth threaten their financial security in the future. It influences not only their current and future financial well-being but also their employment opportunities. Financially stressed employees (especially inexperienced young people) often bring their concerns to the workplace. It influences the work outcomes, use of work time and absenteeism. People who had higher levels of financial stress have lower levels of pay satisfaction, more often waste their work time, and more frequently are absent from work (Kim and Garman, 2004). On the contrary, the adequate level of financial literacy helps young entrepreneurs retain and maintain their micro-businesses for a the longer period, leading to increased employment of the youth.

Despite the workplace, the financial aspect of lives and the challenges facing today's youth have a tremendous impact on their quality of life. More than any other group, youth reactions on today's situation in the area of financial literacy (or illiteracy) will affect their families and communities as well as the countries and regions in which they live. In extreme cases, youth may react by unleashing risky or harmful behaviours against themselves or the society (e.g. stealing).

Although young people are quite often perceived as contributing to many society's problems it should be remembered that they are, in fact, important assets for the economic life of their communities. In today's world, young people need support to contribute to the well-being of society. It should be continuously underlining the significant challenges youth is facing, including challenges in the key areas of financial education and trainings as well as in the fields of economic opportunities. Thus, it is critical to equip young people with basic knowledge and management skills in finance such as financial decision making, earning and spending money, budgeting and using financial services. Such important elements of financial literacy like financial knowledge and skills create their financial awareness. These factors help young people to manage their money, using the credit effectively, building wealth, making informed and good financial decisions and in this way ensuring or improving their financial well-being.

There is some evidence that school-based personal finance education may positively impact on long-term behaviour on the banking market. It turns out, that students who participate in high school courses in personal finance tend to save more of their income in middle age than those who don't participate in such courses (Bernheim et al., 2001). Consequently, the more educated in financial field students are, the more expected and appropriate emotions regarding the need for savings or the consequences of excessive debt (Mandell, 2009). This relation is not always confirmed by every research. However, many analyses show that even if full course

in personal finance of students does not affect financial literacy, it improves the financial behaviour and self-reported levels of thrift (savings) as well as actual indicators of savings, including having a savings account (Mandell 2005). This positive impact of financial education on behaviour may even persist for a longer time (Lerman and Bell, 2006).

Presented features of youth generation, including demographic changes, as well as trends in their financial habits and behaviours, attitudes toward risk and spending money, seem to be a sufficient justification for further analysis and research. In such a research, it would be valuable to analyse the potential of young people as bank clients taking into account their level of financial literacy, as well as, the criteria of financial decision making.

3.2. The role of youth as a banks' customers

Today banks and other financial institutions are facing a dramatically aggressive competition within the new, deregulated environment. In the banking sector, as a result of the financial crisis, the regulatory and political intervention changes the market structure. Additionally banks are under enormous pressure to restore public confidence in the role that they play in the society. With the economic, still challenging environment it is more critical than ever that banks and financial institutions maintain strong relationships with their customers. This process should start at the very beginning of customers' activity on financial because only then banks will have a chance to influence customers'financial habits. It is especially important because of high level of inertia observed on banking market that means that customs and habits determine to large extent consumers' behaviour (Siekierski, 2003).

Research continually confirms a significant correlation between satisfaction and repeated buying, brand loyalty and spreading a positive opinion of the product. In the banking sector (Dubrovski, 2001; Loveman, 1998; Salmen and Muir, 2003) it was found that higher customer satisfaction leads to increased cross-selling at the branch level. Customer satisfaction is thought to be a leading indicator of revenue and growth (Ittner and Larcker, 1998). Most scientists agree that customer's overall satisfaction is rarely concerned with a single aspect of the service package but rather with many aspects (Johnson, 1995). It is closely determined by the satisfaction derived from each interaction. This interaction can occur in a number of ways, from seeing a teller face-to-face, using an Automated Teller Machine (ATM) or conducting business online. There were many surveys focusing on consumer satisfaction determinants (see table 1). None of them extract young people as a special target group. Thus in this field the paper fulfils this gap.

It is especially important because the knowledge as to what extent banks fulfil consumers' needs and expectations is crucial in the process of gaining competitive advantage, enriching bank's brands and protecting or increasing market share at a time when customer loyalty is no longer guaranteed. It is necessary today to specify the factors of consumers' satisfaction and loyalty.

Using consumers' satisfaction in the process of achieving competitive advantage requires from banks the comprehension of the satisfaction concept. The consumer satisfaction category is based on the premise that the profit is made through the process of satisfying consumers' needs. It is associated with expressive outcomes above or equal to expectations. The dissatisfaction is related to performance below expectations for instrumental outcomes. The banking product must meet expectations on both instrumental and expressive outcomes. The dissatisfaction may occur from either type of performance (Johnson, 1995). That is why finding out what factors are taken into account by customers in the process of choosing a bank and satisfying financial needs, becomes nowadays very important.

Table 1. Customers' satisfaction determinants in selected surveys (Klimontowicz, 2014)

Researcher	Determinants of satisfaction
Swan and Combs, 1976 Maddox, 1981	· instrumental - the performance of the physical product · expressive - the psychological performance of the product
Hausknecht, 1988 Henning-Thurau and Thurau, 2003	· emotions interest, joy and surprise
Bitner et al., 1990	employees' willingness to respond to a problem employees' responsiveness to customer needs and requests unsolicited employee actions
Johnston and Silvestro, 1990	hygiene factors enhancing factors dual factors
Mersha and Adlakha, 1992 Prabhakar, 2005	knowledge of the service, thoroughness, accuracy, consistency, reliability, reasonable cost, willingness to correct errors, timely and prompt service
Johnson, 1995	attentiveness, responsiveness, care and friendliness

Customers take into account the economic and uneconomic factors in the process of satisfying their financial needs. The range of factors depends on the product, consumer's level of wealth, education degree, the place of living, age and others. It must be stressed that one financial need can be satisfied by diverse products and concurrently one financial product can satisfy diverse financial needs. According to Smyczek, all financial needs are hierarchical (see fig. 2).

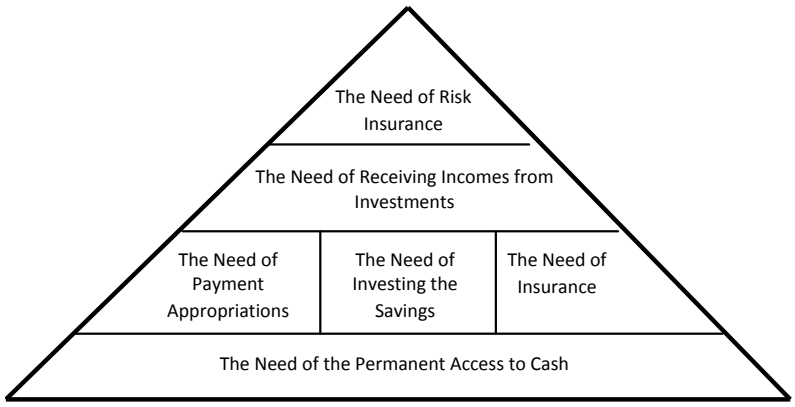

Fig. 2. The hierarchy of consumers' financial needs (Smyczek, 2007)

The hierarchy of financial needs is a schema. That kind of needs can be partially fulfilled at lower and higher levels. Inversions or reordering for particular individuals is also possible. Based on Smyczek, the main factors, which influence customer decision at lower levels, are interest rates, commissions, charges and fees. Satisfying the higher needs consumers consider brand, confidence, reliability, trust and quality factors as service quality and simply procedures.

Answering the question on how to improve consumers' satisfaction is not as easy as it seems. Customer's satisfaction is created through a combination of responsiveness to the customer's views and needs. Creating consumers' satisfaction needs continuous

improvement of products or services, as well as continuous improvement of the overall customer relationship (Zineldin, 2005, pp. 329-343). Analyses show that the factors that are indicated by customers as crucial are not always the same factors, which are taken into account when the bank or the banking product is chosen. They quite often differ from satisfaction's determinants. Understanding these differences is of crucial importance towards creating the bank's competitive strategy (Deloitte 2012, p. 18).

The importance of measuring young consumers' expectations is paramount especially in the context of banking and financial services. Recent service developments, particularly with respect to the electronic delivery of these services, have resulted in a continuous increase in customer expectations and the consumer's subsequent demands as the quality of service improves. Any previous experience with traditional or electronic services, word-of-mouth, or advertising will have an influence on the expectations of the consumer. The new generation of consumers with their entirely different purchase behavior will probably cause some changes in banks market behavior. Banks should learn from young customers' experience by means of feedback to gain insights with a view towards increasing satisfaction.

3.3. Young customers' financial knowledge and decisions

Financial knowledge of young people has been examined by a commonly used questionnaire. It includes questions about division, time-value of money, interest paid on a loan, calculation of interest plus principle, compound interest, risk and return and diversification.

Taking into account the division, most of the responders could use mental arithmetic to undertake simple tasks (97%-100% correct answers). Most of them also understand how inflation impacts on the value of fixed cash amount. In most of the analyzed cases, more than 85% students believe that with the same money they will buy less in one year's time. In the case of the question on paying interest on a loan over 83% students gave the correct response (83%-89%). However, it should be noted that these questions were understood in a different way by particular students. Despite the quite high level of knowledge, the explanation for a part of correct answers was emotional (relationships described in the question), instead of calculations (e.g. no interest from friends). Just as division and time-value of money, calculating the simple interest was not a problem for young responders. Over 89% respondents knew how to count it. However, knowledge and skills of compound interest is much lower than knowledge and skills of simple interest. Similarly, the basic concept of risk and return is understood for most of future economists (over 93% correct responses). It must be mentioned that the results in Latvia were the worst. Only 74% of youth gave the correct answer. The simple question in the area of the diversification used in different countries proved to be challenging in comparison to the question in the area of risk and return. The percentage of correct answers was more varied. The gap between Finland (70%) and Poland (93%) was 23% (see table 2).

Table 2. Young customers' financial knowledge (% of correct answers)

	Finland	Latvia	Spain	Poland
Division	97	98	98	100
Time-value of money	73	86	85	98
Interest paid on a loan	89	86	85	83
Calculation of interest plus principle	89	95	100	89
Compound interest	84	58	78	72
Risk and return	95	74	93	100
Diversification	70	81	73	93

The comparison of the target group's results with the results of research representing the whole of societies (see table 3) proved the first hypothesis. The full-time economic education seems to be very effective and much more efficient than education in action. The authors of financial education programs probably should rethink the way they spread knowledge in this field.

Table 3 Financial knowledge in selected societies (% of correct answers) (Atkinson, 2007)

Country/ area of knowledge	Albania	Armenia	Czech Republic	Estonia	Germany	Hungary	Ireland	Malaysia	Norwey	Peru	Poland	South Africa	UK	BVI
Division	89	86	93	93	84	96	93	93	61	90	91	79	76	84
Time value of money	61	63	80	86	61	78	58	62	87	63	77	49	61	74
Interest paid on loan	x	87	88	84	88	95	88	93	61	x	85	65	90	60
Calculation of interest plus principle	40	53	60	64	64	61	76	54	75	40	60	44	61	63
Compound interest and correct answer to previous question	10	18	32	31	47	46	29	30	54	14	27	21	37	20
Risk and return	77	67	81	72	79	86	84	82	18	69	48	73	77	83
Definition of inflation	81	57	70	85	87	91	88	74	68	86	80	78	94	87
Diversification	93	59	54	57	60	61	47	43	51	51	55	48	55	41

According to the concept of hierarchy of consumers' financial needs, the most important youth financial need is the permanent access to cash and making payments. Products and services, which were bought by young customers show that most of them fulfill this need, which proves the second research hypothesis. Despite one of the responders, all of them have a personal account and generally use payment or credit cards. The need for investing savings strongly occurred only among the Finnish youth. 70% of them own bank deposits while in Poland, Spain and Latvia the percentage of responders using this kind of financial product does not exceed 29%. Saving accounts are the most popular among Spanish responders. Sporadically young people use insurance policies, credits, loans and other financial products (see figure 3). Approximately they have been using their personal accounts and other financial products for almost three years and are satisfied with their bank (86% of responders). Taking into account that they also are not going to change their financial goods suppliers in the nearest future they can be a promising target group for banks.

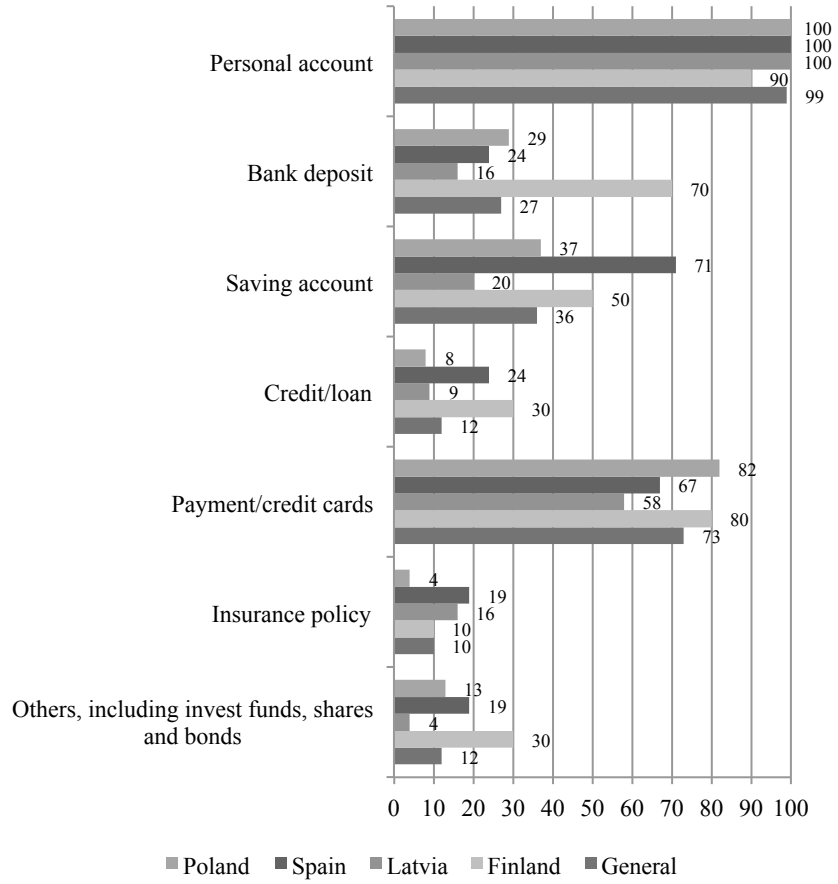

Fig. 3. Financial products and services used by youth (% of responders)

During the research, responders were asked what factors they took into account for choosing particular financial products. They could choose the factors from the list and add additional factors in the list, should it have been necessary. Survey results confirm the general importance of charges, fees and interest rates in the process of decision-making. Additionally, respondents pointed safety, friends and family's opinion, service quality and complexity and friendly procedure as the most important financial decision factors (see table 4).

Youth's financial decision factors differ between products and services. Charges and fees are the most important factors for most financial products (hypothesis 3) as personal accounts, payment/credit cards, credits, loans, invest funds, enterprises' shares and bonds. Interest rate is taken into account at the first place when responders choose bank deposits and saving accounts. Meanwhile for insurance policies the most important is safety.

Despite the factors reflecting the price and other above mentioned factors, the representatives of particular countries pointed out the following features that are important for them (see table 4):

- place of purchase for personal accounts and credits (Finland),
- image, trust and employees' professionalism for credits and loans (Latvia).

Table 4. Young customers' decision factors (% of product owners' indications)

Factors:	Products:							
	Personal account	Deposit account	Saving account	Credit/loan	Payment/ credit cards	Insurance policy	Funds	Shares and bonds
Place of purchase								
Finland	67	29	20	67	13	0	0	0
Latvia	29	33	27	80	38	22	100	0
Spain	38	20	7	20	14	50	0	0
Poland	28	18	17	13	18	100	0	0
Service complexity								
Finland	0	0	20	0	25	0	100	0
Latvia	13	67	27	100	16	33	100	0
Spain	19	0	13	0	21	50	0	33
Poland	25	7	14	13	27	100	25	14
Friendly procedures								
Finland	56	29	20	33	25	0	0	100
Latvia	24	44	27	40	31	56	100	0
Spain	52	40	40	60	29	100	0	0
Poland	32	25	23	13	9	100	25	43
Service quality								
Finland	44	29	20	67	25	100	100	0
Latvia	35	89	100	100	31	100	100	0
Spain	33	60	27	40	29	50	0	0
Poland	15	14	9	0	9	75	0	0
Habits								
Finland	33	14	20	67	25	100	0	0
Latvia	5	33	36	20	19	22	50	0
Spain	10	0	7	20	0	0	0	0
Poland	12	0	20	0	8	50	0	0
Interest rate								
Finland	0	57	80	67	13	100	100	50
Latvia	5	100	100	100	13	22	100	0
Spain	10	100	67	80	29	25	0	100
Poland	9	86	54	38	5	0	0	29
Friend and family' opinion								
Finland	33	43	100	100	25	100	100	100
Latvia	42	33	73	100	28	78	100	0
Spain	43	60	33	40	21	25	0	33
Poland	27	25	6	25	10	75	25	29
Image								
Finland	22	29	40	33	13	100	100	100
Latvia	22	33	36	100	13	11	50	0
Spain	5	0	20	20	14	0	0	0
Poland	9	0	0	38	3	25	25	29

Prestige								
Finland	33	43	20	33	13	100	100	100
Latvia	13	44	27	60	3	56	100	0
Spain	10	20	13	0	7	0	0	33
Poland	4	0	0	0	5	25	50	14
Charges and fees								
Finland	22	57	60	100	25	100	100	50
Latvia	33	78	73	100	19	56	100	0
Spain	43	80	53	80	57	100	0	67
Poland	72	21	37	63	54	100	50	57
Trust								
Finland	22	0	40	100	13	100	0	50
Latvia	25	100	100	100	19	100	100	0
Spain	24	40	33	20	21	25	0	100
Poland	22	29	14	25	6	0	0	0
Promotion / advertisement								
Finland	11	29	0	0	0	100	0	0
Latvia	11	33	18	100	3	11	50	0
Spain	5	0	7	0	7	25	0	33
Poland	5	18	9	0	8	25	0	0
Modernity								
Finland	11	29	0	0	0	100	0	0
Latvia	11	67	55	60	22	56	100	0
Spain	14	20	13	20	21	25	0	33
Poland	16	0	6	0	15	25	0	29
Safety								
Finland	33	29	80	67	50	100	100	50
Latvia	36	100	100	100	28	100	100	0
Spain	29	80	47	80	50	50	0	100
Poland	20	18	20	13	22	100	0	29
Employees' professionalism								
Finland	22	29	20	0	13	0	100	0
Latvia	13	22	45	100	16	33	100	0
Spain	14	40	13	0	7	50	0	67
Poland	2	7	0	13	0	0	0	0
Others								
Finland	0	0	0	0	0	0	0	0
Latvia	0	0	0	0	0	0	0	0
Spain	0	0	7	0	0	0	0	0
Poland	2	0	0	0	1	0	0	29

The results of the research confirm the hierarchical character of financial needs. Young customers use basic financial products, which fulfill their basic needs. Only few of them use more complicated products. The decision factors depend on the product rather than on a the particular country and its banking market characteristics. The findings also confirm that as a result of globalization, the segment of young people becomes more and more homogeneous.

The last step of the empirical research was to verify to what extent knowledge and financial skills can influence the decision criteria concerning the choices on financial products. Table 5 shows the relationship between the financial literacy and criteria of

financial decisions among young educated financial consumers.

Table 5. The relationship between financial literacy and criteria of financial decisions among young educated financial consumers'

Criterion	Personal account	Payment/credit cards
Place of purchase	-0,800	0,400
Service complexity	**1,000**	0,400
Friendly procedures	-0,400	-0,400
Service quality	-1,000	-0,400
Habits	-0,200	-0,800
Interest rate	**0,800**	-0,316
Friend and family' opinion	-0,200	-0,800
Image	-0,738	-0,316
Prestige	-1,000	-0,400
Charges and fees	**1,000**	**0,600**
Trust	-0,105	-0,200
Promotion / advertisement	-0,894	**1,000**
Modernity	**0,949**	0,200
Safety	-0,800	-0,632
Employees' professionalism	-0,800	-0,800

The research results show that basic financial knowledge leads to using some easy-to-understand economic criteria in the choice of financial and banking products. Young people used only the simplest ones related to costs and effectiveness, which proves the fourth hypothesis. Choosing the banking accounts they also take into account aspects of service complexity and novelty, but choosing payment cards they follow banks' advertisements. Other factors are not correlated with the literacy level of target group. These results combined with emotional explanation, based on a number of answers, indirectly also proves the fifth hypothesis.

4. Conclusions

Financial literacy seems to be the main challenge for societies in the nearest future. Financial knowledge and skills are quite poor all around the world. Even young economists, who achieved quite satisfactory scores in the test on financial literacy, make many mistakes in the area of finance. Some of them, take their financial decision on the basis of emotions and not on the financial knowledge and skills. The authors of the article have also noticed an excessive curiosity and misunderstanding of simple questions among many young people educated in the area of the economy. Reaching the higher scores in this field will demand rethinking the educational strategies and programs that have been used so far. Young people should be considered as a crucial target group of financial education. Their purchase behaviour and access to money have changed remarkably during the last few decades and as a result of globalisation they have become much more homogeneous the ever before. Banks have already realised that they are a very attractive target group and offer them many financial products. The access to financial products is very easy today. Even if banks declare that they focus on fulfilling young people's need and expectation, it should be remembered that banks are motivated to connect youth to them for a long

time and build long-term relations. Thus, a set of appropriate knowledge is necessary to make mindful and aware decision in the process of choosing a bank and financial products.

The results of pilot research proved that the target group represents the higher level of financial literacy compared to its level in society. Thus, it may be stated that even a basic level of financial knowledge leads to more rational decisions on the banking market. Most of the factors taken into account in the process of choosing a financial product were of a measurable character. Using them requires financial knowledge and skills on division, time-value of money, risk and return, interest rates and diversification. When choosing products familiar for them, they take into account their economic parameters. However, the basic financial knowledge influence only the main and obvious decision factors/criteria as effectiveness, costs, service complexity and novelty. From that perspective, youth is quite conscious while choosing banking products. Concurrently it can be observed that decisions concerning more complicated, difficult-to-understand for youth, financial products were based rather on other non-economic criteria such as trust, safety, image or family and friends' opinion. These criteria were not significantly correlated with financial knowledge and skills but still they are very important. Making conscious decisions on a banking market needs some broad and multi-faceted set of knowledge and skills and the financial education programmes should be simultaneously evaluated with financial market evolution. Otherwise, young people still will not be able to specify their expectations and will follow others' advice, including banks' advertisements.

Both, literature review and field research indicate many interesting survey gaps. In this paper, the authors focus on young people who might be prospects for banks and financial institutions. However, developing the problems of youth financial literacy and financial education, the role of families in this field should also be taken into account. The financial and economic socialization at a very young age, even from four to six years, is a factor affecting capacity to understand more sophisticated financial concepts by youth (Roos et al., 2005). It may mean that the primary source of financial socialization should be the family. Results of conducted surveys confirmed the hypothesis that parents have a role in the transmission of financial knowledge (Mandell, 2008). That is why youth's financial education is so important. Only educated young parents can show their children a correct attitude to family's finance and an appropriate way of making financial decisions. Additionally, financial education can help to change wrong habits in these fields.

Summarising, the higher level of financial literacy allows young people to make rational financial decisions and influences their behaviour on the banking market. In a long-time perspective, it will also determine the well-being of their households and the national and global economy.

5. Implications

There is a significant concern about financial literacy by the researchers and authorities. However, many research gaps have to be fulfilled in future research. The further research should include aspects of youth's financial education mentioned in this paper. Their results will let authorities prepare better education programmes for young people to become more and more conscious and banks to match their offers with youth needs and expectations.

The research results allow to formulate some remarks that may be helpful in the process of developing financial education programs and strategies. The authorities should consider the following advice:

- programs of financial education should target specific groups in the population to serve best those most in need,
- programs should go hand in hand with the development of financial market and should take into account needed simplifications for less financially literate,
- financial education should start from youth,
- financial education should be a long-term education because small interventions are not effective in the case when financial illiteracy is so widespread in the population.

Financial education (especially of youth) may also help in achieving the UN Millennium Development Goals (MDGs). Some of them are successfully implemented e.g. the reducing the disparities of the access to the financial education and other initiatives between boys and girls as well as between women and men. It contributes to increasing the level of financial literacy and may improve the financial well-being of individuals. Taking into account the role of financial literacy for individuals and the economy as a whole, the realization the targets of the financial education gives the chance for achieving the universal primary education (including financial education), to promote gender equality as well as indirectly to eradicate extreme poverty and hunger and their consequences and to develop a global partnership for the widely understood development.

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E-transparency as an organizational innovation in financial services – the case of Lithuania

Ginta Railiene

Kaunas University of Technology, Lithuania
ginta.railiene@ktu.lt

Abstract. The development of e-transparency culture requires certain organizational changes related to innovative ways of organizing, structuring and presenting information to interested parties and employing digital technologies. This paper presents the discussion of concepts needed to be researched in order to disclose the e-transparency level of finance institution. It is suggested to focus on content of required and voluntary information (content quality) and on channels for information dissemination (channel quality). The methodology is employed in defining the e-transparency level of Lithuanian credit providers and assessing how innovative finance institutions are in disseminating the regulatory and voluntary information. The research results indicate that Lithuanian banks are contributing to legal requirements, but voluntary presentation of data is rather brief and ways used for information dissemination are poor compared to IT possibilities. The e-transparency culture and organizational innovations in credit unions are under development.

Keywords. E-transparency, Information Disclosure, Website, Social Media, Finance Institutions, Banks, Credit Unions, Lithuania.

1. Introduction

The information provided by finance institutions is significant for stakeholders, is important for sustaining stability and trust, and is important for finance institution itself. The information acts as the basis for stakeholder decisions and as the factor of their satisfaction with finance institution. The e-transparency concept employed in the paper is treated as public availability of specific information that is disclosed not only because of legal requirements, but voluntary as well. The discussion may be even broader, i.e. thinking on ways used for information dissemination, as digital technologies provide, evidently, variety of opportunities. The move to e-transparency requires changes in finance institution and application of organizational innovations when organizing and presenting the information, applying different technologies, analyzing data and testing the impact.

E-transparency is researched in different ways, starting from macro view as influencing financial stability (Tadesse, 2006), discussing on necessity on balance between regulation and free market forces (Granja, 2013; Allenspach, 2009), to institutional level discussions, as information quality in financial statements (Kreipl, Hane, Mueller, 2014), contribution to Basel Accords and accounting standards (Stepanov, et al. 2010; Bonson-Ponte, Escobar-Rodriguez, Flores-Munoz, 2006, 2008; Douissa, 2011; Kundid, Rogosic, 2012; Serrano-Sinca, Fuertes-Callen, Gutierrez-Nieto, 2007) and relationships of macro and firm-level data with e-transparency disclosure (Chen, Hasan, 2005; Srairi, Douissa, 2014). E-transparency covers not only informational content, but the provision or channel quality characteristics, thus the web quality and use of social media researched cover part of

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e-transparency concept (Miranda, Cortes, Barriuso, 2006; Serrano-Sinca, Fuertes-Callen, Gutierrez-Nieto, 2007; Hearn, Foth, Gray, 2009; Bonson, Flores, 2011).

E-transparency is important for banks as major finance institutions and the most advanced developers, having the strictest regulations and greatest opportunities to develop the culture of e-transparency. It is important for credit unions (CUs), which are much smaller, but should be responsible to stakeholders and employ the IT challenge. Customer credit providers are evolving rapidly without (comparatively) strict regulations, so it is important to monitor and research their disclosures as well. Thus the problem analyzed in the paper is: what is the e-transparency level of Lithuanian credit providers and how innovative finance institutions are in disseminating the regulatory and voluntary information. The purpose is to discuss the main characteristics of e-transparency of finance institutions highlighting the current situation of Lithuanian banks and CUs. The e-transparency of consumer credit providers is discussed only in short using the information available from indirect sources.

The paper reviews e-transparency concept in general, holding the content and channel quality characteristics. The methodological framework covers e-transparency dimensions: content as information appearance and channel as use of Web technologies and social media. The research methodology is presented separately for banks and CUs, as regulations differ and disclosure of obligatory and voluntary information is of different manner. Research results allow concluding that Lithuanian finance institutions contribute to legal requirements but are poor in detailed explanations and visualization, are rarely innovative in use of web technologies and social media.

2. E-transparency concept and measurement

The concept of **transparency** is mostly analyzed and understood without detailed explanations and as one of the prerequisites for communication among businesses, governments or individuals. Transparency is intrinsically related with accountability and usually these concepts are analyzed, defined and valued jointly. Though the definition of transparency, as well as e-transparency, is needed in order to define the major features and scope for valuation.

The transparency and accountability initiative (TI, 2009) defines transparency as a principle and a duty to act visibly, predictably and understandably in order to promote participation and accountability. *Transparency International* (TI, 2012) defines transparency as a characteristic of institutions that are open in the clear disclosure of information, rules, plans, processes and actions and uses the term corporate transparency as publicly reporting on activities and operations. According to BIS (1998) transparency is a process by which information about existing conditions, decisions and actions is made accessible, visible and understandable; transparency is defined as public disclosure of reliable and timely information that enables users of that information to make an accurate assessment of a bank's financial condition and performance, business activities, risk profile and risk management practices (BIS, 1998, p. 7). This principle, duty, characteristic, process is applied for all institutions - governments, companies, organizations and individuals. Bank transparency is discussed by Tadesse (2006, p. 2) stressing that it reflects regulated bank-level disclosure, private acquisition of bank-level information and dissemination of bank information in the economy. Transparency is important for market institutions and acts as one of the essential conditions in free market and makes it more effective. Market regulations lead to unified forms and timing of information disclosure, so the stakeholders could make informed decisions.

E-transparency holds all the characteristics of transparency defined above plus the use of information and communication technologies (ICTs), i.e. internet as information provision channel (internet information disclosure). E-transparency is the partial measure of overall institution's transparency as information may be disseminated by other channels as meetings, direct communication, distribution of printed material, telephone, media other than internet.

The quality of information itself and the way it is disclosed should be defined and follow certain characteristics, as only the availability of obligatory or voluntary information does not mean transparency: large amount of unstructured information leads to confusion and mislead rather than to transparency (BIS, 1998; TI, 2009). Both situations – lack of information or partly information and large amount of raw information – leads to situation of asymmetric information, when one party is more informed than the other. It leads to two main problems: adverse selection (before the transaction) and moral hazard (after transaction) (Nier, Baumann, 2006). Thus the level of information provision should be discussed.

Information disclosure of finance institutions is defined by number of regulations, including Directive 2004/109/EC (2004), Basel accords (BIS, 2003, 2008, 2014), international and national financial reporting standards, national regulations on provision of public information. Improvement and unification of information disclosure requirements is an ongoing process. The third pillar of Basel III is directly related with improvement of banks' transparency and disclosure (BIS, 2014). Unification of financial reporting standards is difficult but possibly may reduce information asymmetry (Naranjo, Saavedra, Verdi, 2013).

Usually transparency is treated as beneficial for banks and financial stability, but different studies demonstrate that it may have opposite effects and lead to bank runs (Allenspach, 2009; Siritto, 2013). In case of finance institutions, information provision is highly regulated, finance institutions are fundamentally different from other sectors because of their activity nature and functions in the economy, thus transparency of finance institutions should be differentiated from other sectors and here the level of transparency (level of disclosure) becomes important. Allenspach (2009), Kundid, Rogosic (2012), Siritto (2013) proposed the concept of socially optimal bank disclosure or optimal degree of transparency. Bank' transparency may result with positive informational externalities with efficient resource allocation (and symmetric information) and negative informational externalities with bank run, systemic crises and stock market collapse (BIS, 1998; Tadesse, 2006; Granja, 2013, Allenspach, 2009). Granja (2013) summarizes the debates of studies suggesting that disclosure regulations could destabilize banking sector, and, on contrary, can contribute to the stability and development of them, thus the question is still under research. The focus is on banks as the major institutions in finance system structure, but the concept of socially optimal disclosure should be applied to all finance institutions.

In general terms, according to transparency initiative (TI, 2009, 2012), information should be relevant and accessible (comprehensive language and formats, detailed and available in appropriate ways for stakeholders) and timely and accurate (available in sufficient time for decision making, up-to-date, accurate and complete). Characteristics defined by BIS (1998) – comprehensiveness, relevance and timeliness, reliability, comparability, materiality. These characteristics and sound measurement principles should be applied for disclosures of qualitative and quantitative information in order users of information could assess activities and risk profile. The characteristics of information quality may be grouped as accounting-based (accrual quality, predictability, persistency, smoothness) and market-based (value relevance, timeliness, conservatism) (Francis et al., 2004).

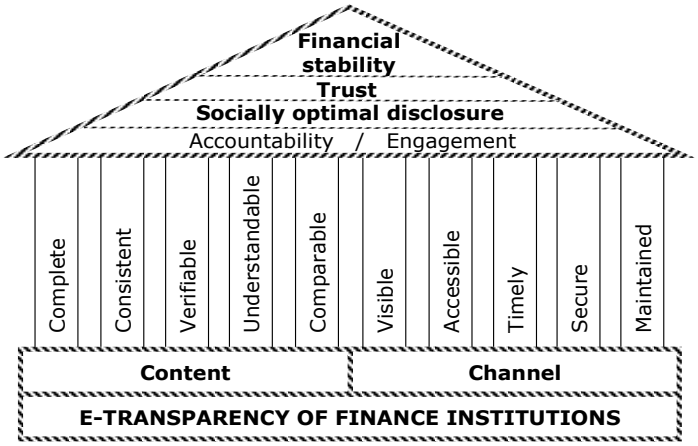

Fig. 1. The concept of e-transparency of finance institutions.

International accounting standards board (IASB) stresses the importance of high quality, transferable and comparable information. IFRS (IFRS, 2014) requires addressing the understandability, relevance, reliability and comparability of information. Defining the e-transparency concept through information quality perspective these characteristics may be separated by two factors – content (information) and channel (internet as a medium) (Figure 1).

In Figure 1 two basic assumptions are incorporated: (a) in order to reach the target of socially optimal disclosure, the engagement of stakeholders into improving e-transparency of finance institutions is crucial, and (b) transparency, as well as e-transparency, is mostly important because it helps to build trust, and trust is a basis not only for transactions, but for engagement of stakeholders as well. The engagement of stakeholders is much broader concept related to overall quality of financial services, source of innovations, and acts as a tool for improving financial literacy. For finance institution it is important to have a clear strategy in order to get the most from engagement of stakeholders (Hearn, Foth, Gray, 2009).

E-transparency is researched in different ways, first of all concerning the financial stability subject, especially after financial distress periods (Tadesse, 2006). The financial reporting and/or accounting quality would be a niche research, stressing the information quality in financial statements (Kreipl, Hane, Mueller, 2014). The other research focus is on regulation level and authorities that monitor the state, activities as well as information disclosure. Here the main questions are the leverage between regulation and free market forces, avoidance of interest conflicts (Granja, 2013; Allenspach, 2009; Macerinskiene, Ivaskeviciute, Railiene, 2014), incentives formed by regulations (Mortreuil, 2010).

The methodology of corporate transparency disclosure developed by Standards & Poor's initiative covers such components (Patel, Dallas, 2002; Stepanov, et al. 2010): ownership structure and shareholder rights (transparency of ownership, concentration of ownership, voting and shareholder meeting procedures), financial, operational (business focus, accounting policy, related party structure, information on auditors), board and management, board and management remuneration information (board structure and composition, role of board, director training and compensation, executive compensation and evaluation).

The measurement of finance institution's transparency is specific. In more specific researches the criteria are developed taking into account requirements applied to banks, namely Basel accords, international or national public disclosure requirements.

Bonson-Ponte, Escobar-Rodriguez, Flores-Munoz (2006) developed Basel II disclosure index and tested 87 criteria, addressing general disclosure principles, scope of application, capital structure, capital adequacy, credit risk, market risk, and operational risk disclosure, securitization, equities, interest rate risk. Douissa (2011) researched compliance with Basel II requirements and separated transparency measurement categories with 43 criteria: information completeness (financial, non-financial as bank governance, operational risk, forecasts, corporate social responsibility), information opportunity (in biannual or quarterly reports), information credibility (auditing authorities, application of standards, adjustment by inflation), information accessibility (availability on website, rating agency classification). Kundid, Rogosic (2012) formulated criteria from national mandatory requirements and voluntary presentation of general information. Researches listed incorporate content quality characteristics however channel quality is none the less important.

The channel quality helps to make information visible, accessible, timely, secure and maintained, and encourage participation of interested parties. The determinants of bank transparency measurement developed by Bushman, Piotroski, Smith (2004) and later used by Tadesse (2006) employ more explicit view, valuing not only content, but also information distribution channels. In their model determinants are grouped into three categories: corporate reporting (disclosure intensity, financial disclosures, governance disclosures, accounting principles, timeliness and credibility of disclosures), private information acquisition and communication (direct as financial analysis and indirect as institutional investors and inside trading), and information dissemination (media channels).

In order to discuss the channel quality characteristics in e-transparency research context, it is important to review the main web quality research dimensions. Calero et al. (2005) has developed Web Quality Model (WQM) stressing the 3 dimensions – Web features (functionality, reliability, usability, efficiency, portability, and maintainability), life-cycle process (development, operation, maintenance, effort, and reuse) and quality characteristics (content, presentation, navigation). Zhao and Zhu (2014) tested the web quality model with three dimensions: web source quality (availability, accessibility, durability, timeliness), information quality (reliability, correctness, completeness, objectivity, understandability, validity), and Web application-specific quality (relevance, presentation, navigation).

Web quality is usually incorporated in broader context and is used as one of the dimensions in e-service quality models. The sample dimensions used for e-service quality may be named as website design and usability, information quality, service reliability, responsiveness, assurance, personalization (Swaid, Wigand, 2009). With development of e-services the SERVQUAL model (Parasuraman, Zeithaml Berry, 1988) was adopted by authors to e-services and appeared as E-S-Qual model (Zeithaml, Parasuraman, Malhotra, 2000; Parasuraman, Zeithaml, Malhotra, 2005) and is explicitly used by other researches. The E-S-Qual model proposes 11 dimensions: reliability, responsiveness, access, flexibility, ease of navigation, efficiency, assurance/trust, security/privacy, price knowledge, site aesthetics, and customization/personalization. The determinants were used in online reporting researches (Miranda, Cortes, Barriuso, 2006; Serrano-Sinca, Fuertes-Callen, Gutierrez-Nieto, 2007).

The channel quality in e-transparency research should cover the use of social networks as well. The development of social networks encouraged to employ social media features into corporate dialogue – multidirectional flows between the stakeholders and institutions (Bonson, Flores, 2011). Employing social media is important as it allows not only to present the information, but to get the feedback and engage stakeholders into development of content and opinion. Social media performs several functions as connecting people, sharing, assessing and crowdsourcing content,

generating knowledge (Eggli, Park, 2013). Here different services and functions can be used as Facebook, Google+, Linkedin, Flickr, YouTube, Vimeo, Tumblr, Weibo, Twitter, "like" function, wiki software. The description of social media provided by The Federal Financial Institutions Examination Council (FFIEC, 2013) includes interactive online communication using micro-blogging sites (Facebook, Google Plus, MySpace and Twitter), forums, blogs, customer review web sites and bulletin boards, photo and video sites, professional networking sites, virtual worlds, and social games.

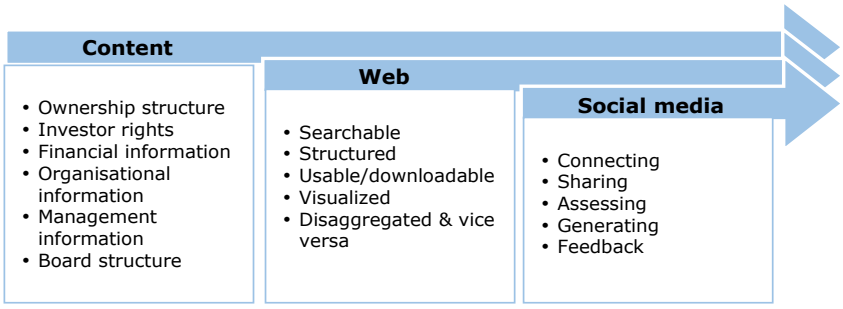

Fig. 2. Content and channel determinants of e-transparency of finance institutions.

The models of web quality or e-service quality are developed for general corporate application without intention of specific application to finance institutions. Bonson, Flores (2011) researched separately the use of Web and social media by finance institutions, testing what ICTs, functions and social media channels are employed for communication and mutual sharing of information. Incorporation of content in such research could give more precise view what and how is presented for stakeholders - internet users. The conception how obligatory and voluntary information content and channel features are integrated in finance institution is presented in Figure 2.

The measurement of e-transparency follows the idea of Hearn, Foth, Gray (2009, p. 56), that three layers of the new media communicative ecology – social, content and technology – are co-evolving and mutually enabling. The changing way of communication and relationships are directly related with organizational innovations in the way information is presented and disseminated. The suggested methodology involving the discussed concepts (valuation of required and voluntary information and channel for information dissemination) is presented further.

3. Research methodology

E-transparency was researched testing the appearance of two theoretically analysed dimensions: content as information appearance and channel as use of Web technologies and social media. The research covers credit providers – banks and credit unions. There is only the short analysis of statistical data presented in case of fast credit companies as there are no legal financial discloser requirements for them and internet sites are designed for service information only. The research methodology is presented separately for banks and CUs, as regulations differ and disclosure of obligatory and voluntary information is of different manner.

In case of banks there were any statistical methods applied as too little sample cases appear. In case of credit unions the criteria were tested in two ways: (a) by testing the relationships among scale measures with Spearman's rho nonparametric correlations (<0,1 very weak, 0,1 – 0,4 weak, 0,4-0,6 moderate, 0,6-0,8 strong, 0,8 – very strong) and (b) testing the differences in groups with Mann-Whitney U-test (the hypothesis of

the same distribution between groups was rejected with significance level p<0,05) (Cekanavicius, Murauskas, 2002).

Banks. The disclosure of obligatory information was tested according the requirements for public information disclosure (LB, 2006) and international financial reporting standards:

- Quarterly disclosure – balance sheet, income statement, information on asset quality, correspondence to required risk ratios, international ratings if any, key profitability ratios (7 criteria "quarterly") ;
- Timing: quarterly reports not later than 35 days after the end of reporting period, and annual reports (1 criteria "reports presented");
- Capital adequacy: process and discussions on the main aspects when defining capital adequacy, capital adequacy reports, methods for setting up the capital requirements, other information (7 criteria "capital adequacy")
- Credit risk: principles, definitions, special provisions by different positions and distribution, information on delays by type and value, type of rating methodology used and descriptions (13 criteria "credit risk")
- Trading book: description of models (3 criteria "Trading book")
- Operational risk and concentration description of AMA if applied, and other; large lending positions and information on concentration management (7 criteria "operational risk");
- Ownership and management: major owners, affiliates, cross ownership, description, information on board, board of directors, other committees, structure, organizational structure, procedures and description, employees, remuneration policy and finance, activity plans, forecasts, investment policies, segment analysis and forecasts (21 criteria "Owners & management").

Other disclosure items were separated into five categories based on Patel, Dallas (2002), Baumann, Nier (2003), Bonson-Ponte, Escobar-Rodriguez, Flores-Munoz (2006, 2008), Hearn, Foth, Gray (2009), Stepanov et al. (2010), Bonson, Flores (2011). The appearance on Internet site was tested on:

- General information: vision, mission, principles, history, statute, code, commitment to sustainable development, social activities, important events, money laundering prevention, activity plans, segment analysis, reports/minutes from meetings (11 variables "general"), news and alerts (2 variables "news");
- Ownership and board information: board members, board of directors, their description, other committees, description, number of shares hold by board, board of directors, organizational structure/chart, share owners major, cross ownership of group companies (10 variables "ownership and board");
- Financial information (comments on financial results, their visualization, additional reports, comments, earnings or other forecasts, plan of investments (5 variables "financial");
- Web technologies (sitemap, situation on web tree, virtual tours, search option, online query, map, navigation, print-friendly pages and e-mailing, share function, files in pdf, html or ppt, xls, mail lists or alerts, date of updating (14 variables "Web");
- Social media (Facebook, YouTube, Google+, LinkedIn, Twitter, RSS, other (7 variables "social").

The reports of 2013 were analyzed. The site information was traced and analyzed taking the period of May-July, 2014.

Credit unions. Recently the regulations of CUs risk testing, required ratios and

financial disclosure requirements have tightened. The main changes are: starting on 2018 the capital should be not less than 145 thousand Euros (was 4.34 thousand Euros), number of members – not less than 150 (was 50), unions having assets greater than €14.5 m will have to employ risk assessment specialist (LRS, 2014). Regulations on financial information public disclosure are as follows (since 2012): financial reports, auditing conclusions and other information required by supervisory authority should be provided not later than 4 months after the end of financial year (LRS, 2014). Required reports are balance and profit/loss account, and CUs exceeding €2,9m of assets should prepare statements of cash flow and share capital changes. Reports should be prepared according 43rd national accounting standard (FRS, 2011). The assessment of CUs results by independent auditing authority is required for CUs exceeding €2,9 m of assets.

Criteria used for CUs e-transparency measurement characterize the presence of general and specialized information, web technologies and social media used (valued of 1 or 0 depending whether criteria is satisfied or not, except "time"):

- General information, concerning services, fees, payments (18 variables – "services"); general - activities, vision, mission, principles, history, statute, code, membership conditions, news to members and public (10 variables "general"), latest information dates (1 variable "time", measured in months from last information provided, thus should be interpreted on reverse – the higher the mean, the older the information);
- Specialized information (board, management, crediting committee members, contacts, positions, description of main requirements for the position, organizational structure, plans, license, financial reports and auditing conclusions, additional reports, comments on financial results, their visualization, latest information dates (17 variables "specialized");
- Web technologies (presence of CUs individualized internet pages, online query, search option, site map, map, navigation, print-friendly pages and e-mailing, movies, slides, links (7 variables "Links" and 8 variables "ICT");
- Social media (presence of any social media access, individual Facebook, link to LCU Facebook, use of YouTube, Google+, LinkedIn, YouTube, Twitter, RSS and other (10 variables "social").

The majority of CUs (62 out of 75 in 2013) belongs to the Association of Lithuanian Credit Unions (LCU) and is serviced by it. The LCU provides the opportunity to use unified Internet sites, although CUs can provide individualized information on them or use Internet site of their own. It was taken into account when comparing e-transparency measures. Criteria for measurement were divided into two categories – standardized and individualized (information, news, social media, etc.). E-transparency criteria were compared to the main CUs characteristics as size (asset, capital, members), financial results (profit/loss, ROE, ROA) and place of activity (by size of the city where the main office is located). CUs act by partnership principles and location is still very important, for example, all central offices have e-mail addresses but branches (cash offices) communicate with members only by phone or directly.

Fast credits. There were 60 consumer credit providers named by Lithuanian bank in 2013 if eliminating credit institutions as CUs and banks (LB, 2014b). There are no legal requirements to disclose financial, management or risk measurement data, thus internet sites of consumer credit enterprises (CCE) are designed for service information and typically only contacts are provided as information about the enterprise. The e-transparency of separate CCEs can't be measured, only the development of consumer credit market. The compliance with legal requirements could be analyzed in case of advertisements and provision of appropriate information

on services, prices and crediting conditions.

The research was made testing the presence of content and channel characteristics excluding the qualitative dimensions. The other limitation of the research is that analysis is made on the sample of one year reports. The longitudinal survey would show the development of content and channel for information provision. It is foreseen to compare the e-transparency of banks and CUs in different countries in further research.

Limitations of the study should be taken into account when analyzing the results. The methodology is separate for banks and credit unions, there are only 7 banks researched thus no statistical data analysis methods applied, no qualitative characteristics applied, data were collected only once at a single point in time.

4. Research results

Banks. There were 7 banks acting in Lithuania at the end of 2013, most of them of foreign capital (Scandinavian, as major banks are SEB bankas, Swedbank, DNB bankas). The growth of banking sector in 2013 was 6.4%, equity capital of banks increased by 11,9% (Table 1). There are two largest banks that amount in 69% of total banks' assets (three largest banks amount in 88%). The smallest bank amounts in €119 m, 57 times less than the largest one.

Table 1. Profile of Lithuanian banks, million Euros (calculations made using data from banks' annual accounts)

Year	Dimension	Assets	Equities	Profits	ROA, %	ROE, %
2013	Mean	2590	327	35	0,7	4,2
	Median	1521	93	3	0,5	3,8
	Min	119	6	-0.6	-0,5	-10,2
	Max	6837	949	163	2,9	17,2
	Total	18130	2290	246	1,4*	10,8*
2012	Total	17039	2047	156	0,9*	7,6*
Change over year, %		6,4	11,9	57,6	48,1	40,8

Remark. *calculated using total values.

In total in 2013 banking sector was more profitable compared to 2012, profits increased by 57%. Higher profitability is because of high growth in two major banks, while four banks decreased in profits. There was only one bank experiencing losses, but it decreased losses in 2013. The ROE of banking sector increased by 40.8%, the largest ROE reached 17.2%, and the ROE median was 3.8% (losses only in one bank). Thus the banking sector experiences growth in assets, sustain profitability, although is highly concentrated.

The disclosure requirements of obligatory information in financial quarterly and annual reports are fulfilled. The quarterly reporting of all banks has all required items, although explanatory notes and additional or other information is provided by larger banks (Table 2). All banks contribute to the requirement to disclose capital adequacy ratios and calculation details, although the depth of discussions on the main aspects when defining capital adequacy is fulfilled not in all reports. Credit risk is named and defined; delays by type and value are provided in all banks' reports, although individualized analysis is incomplete. The descriptions on trading book and operation

risk are formal and short in content. The description and visualization of information related to ownership and management differs significantly: all required information is provided, but comments and descriptions in some banks are poor. The activity plans, forecasts, segment analysis and forecasts are poor in almost all banks (Table 2).

Table 2. Disclosure of obligatory information by size and profitability

	Quarterly, %	**Capital adequacy, %**	**Credit risk, %**	**Trading book, %**	**Operational risk, %**	**Owners& Management, %**
Total, mean	86	87	77	73	74	76
Assets, mean						
5316 million Eur	100	87	79	79	82	89
546 million Eur	75	88	75	69	69	65
ROE, mean						
13%	100	87	82	77	83	87
4%	100	89	81	76	80	75
-1%	67	86	72	69	65	59

The obligatory disclosure of information broken up in groups by size (assets) and profitability (ROE) show that larger and more profitable banks provide obligatory information with more explicit comments and analytics. The conclusion is general in manner as cannot be tested statistically.

The analysis of information provision on internet (not in financial reports) shows that only basic information is provided without presenting details or analytics, although explicit information is available in yearly reports (announcement and explanatory notes) (Table 3). Moreover, the financial information is rarely presented, but is not commented, visualized, any additional reports are disclosed, even if banks show positive growth and earn profits. Web technologies used in general may be valued as moderate, in exception of provision of additional files, videos, use of skype, date of specific information updates, printer friendly pages and version for disabled persons. All banks except one used social media channels, namely Facebook (86%) and YouTube (57%). Other links used are Google+, LinkedIn, Twitter, RSS, slideshare and foursquare. In general bank's visibility measured by external links is higher than average (Table 3).

Table 3. Information provision on internet site, use web technologies and social media in Lithuanian banks by size and profitability

	General, %	**Owners and board, %**	**Financial analytics, %**	**WEB technologies, %**	**Social media, %**	**Links rank***
Total, mean	**48**	**47**	**3**	**52**	**39**	**2,3**
Assets, mean						
5316 million Euros	59	60	1	62	52	3,3
546 million Eur	40	38	5	45	29	1,5

ROE, mean						
13%	65	55	0	64	50	3,5
4%	50	70	10	50	36	2,5
-1%	36	27	0	45	33	1,3

Remark: * scale 1 – least incoming links, 4 – most incoming links.

The comparison of information disclosure, Web technologies and social media channels used by size (assets) and profitability (ROE) shows that in all cases mean values of larger and more profitable banks are higher. However smaller banks provided financial ratios and required ratios on internet site, although without analytics or visualization. This conclusion cannot be tested statistically as too little cases appear.

The main criteria disclosing the researched e-transparency dimensions – legal disclosure, provision of general and specialized information, use of web technologies and social media – are presented in Figure 3.

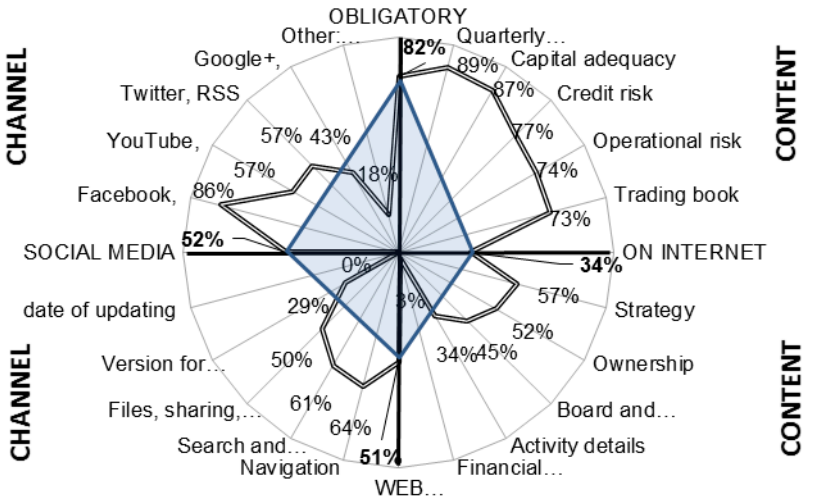

Fig. 3. E-transparency of banks: legal reporting, presence of general and specialized information on site, use of web technologies and social media

The data contribute to the conclusion that e-transparency of banks is higher than average mostly because of their compliance to legal requirements and disclosing the obligatory information in financial reports.

Credit unions (CUs). At the end of 2013 there were 75 active CUs, uniting 150.5 thousand members (LB, 2014a). In 2013 the total assets decreased by 4.1% (Table 4), although the loss decreased almost by 100% and amounted in 37 thousand Euros in total (compared to €17 m in 2012). Because of higher requirements of risk valuation the loan portfolio quality ratios decreased (5.8% provisions, 22.3% non-performing loans), but risk management procedures should enable CUs to reach higher efficiency and attract more members (LB, 2014a).

Table 4. Profile of Lithuanian CUs, thousand Euros (calculations made using data from LB, 2014a).

Year	Dimen-tion	#	Assets	Debt Securities	Loans	Deposits	Capital	Profit/ loss
2013	Mean	-	7.615	3.703	3.430	6.722	669	-0,5
	Median	-	4.396	1.415	2.102	3.851	425	-2,0
	Min	-	550*	29	12	499	44	-929
	Max	-	33.183	23.900	15.078	30.739	3.396	570
	Total	75	571.159	196.279	253.814	497.432	50.189	-37
2012	Total	77	595.392	119.451	325.216	527.694	68.414	-17.414
Change over year, %			*-4,1*	*64,3*	*-22,0*	*-5,7*	*-26,6*	*-99,8*

Remark. *CU that started activities at the end of 2013 was not counted.

The size of CUs differs significantly; the smallest assets are 550 thousand Euros, 60 times less compared to the largest one. The median of CU assets is smaller than average and amounts in €4,4 m. The total loss of CUs in 2013 may be explained in detail: there were 34 profitable CUs in 2013 (45%), median is loss of 2 thousand Euros, and the largest profit was lower compared to loss (570 and -929 thousand Euros respectively) (Table 4).

Table 5. Correlations of financial and statistical CUs data (calculated using data from LB, 2014a)

	Place	Asset	Capital	Profit/ loss	Members enterprises	Members total	ROA	ROE
Place	1,000							
Asset	,125	1,000						
Capital	,065	**,885****	1,000					
Profit/loss	,154	**,272***	,096	1,000				
Members - enterprises	**,376***	**,496****	**,634****	,178	1,000			
Members total	-,234	**,703****	**,728****	-,027	**,516****	1,000		
ROA	,090	**,347****	,181	**,926****	,147	-,095	1,000	
ROE	,084	**,345****	,178	**,948****	,123	-,085	**,987****	1,000

Remark. Spearman's rho: ** p 0.01; * p 0.05.

The relationship of the main financial and statistical data (Table 5) allow to conclude that larger CUs are more profitable (although the correlation is weak) and have higher profitability ratios, naturally have larger capital and number of members, attract more enterprises as associated members. It is important to note, that size measured by assets, capital or total members is not directly related with activities in largest cities (place). The only positive and strong in average relationship shows that CUs acting in larger cities (and their regions) attract more enterprises for partnership (Table 5).

Comparing the results of information disclosure, web quality and use of social media only few cases were proved as having statistically significant relationships (Table 6) or differences (Table 7), thus further explanations are made explaining exceptional cases rather than providing generalized conclusions.

All CUs presented annual reports as required by low, except one. There were two exceptional cases, one with unreadable file presented and the other CU with license

provided only at the end of 2013. Not all CUs presented their reports on their own site – the set of required reports of LCU members are provided on LCU internet site. When measuring the financial disclosure it was valued as any financial reports are presented on the site. There were two CUs (non-members of LCU) that presented reports only for 2013, while the requirement is in force since 2012. There is only one CU that provided reports starting 2011 and one that provided quarterly reports (non-members of LCU).

In general all reports are prepared according the regulations – national accounting standard and methodological recommendations. However the provision of additional explanations and meaningful calculations, comparisons and valuations is quite rare. There is only one CU that provides detailed reports prepared by council, board and credit committee; located in capital, with lower than average assets and number of members (near median). Beside the financial reports all CUs provide the required conclusion made by auditing authority with information about responsibilities of auditor and CU, the main conclusion and recommendations. It fits in one page in average. There are only 9 (12%) CUs with auditor conclusions made using extended analysis of CU activities, fitting in 3 to 5 pages. In addition only 8 CUs (11 %) provide the auditing report that consists of 7 pages in average; all of them are located in largest cities, although the size differs.

Table 6. Mean values and test of significant difference in groups by financial disclosure, service individualization, communication, and use of social media

	Place	**Assets, thousand Euros**	**Information**				**Web Technologies**	
			Services	**General**	**Time**	**Specialised**	**Links**	**ICTs**
Max value	8	33.183	18	10	19	17	7	8
Mean total	4,3	7767	8,5	1,8	3,3	3,6	1,9	2,1
Financial disclosure								
Not disclosed	**3,9**	**6209**	**7,5**	**1,5**	**4,1**	**2,1**	1,8	**1,1**
Disclosed	**5,7**	**13789**	**12,1**	**2,9**	**1,3**	**4,3**	2,1	**3,2**
Sigma	**0,012**	**0,003**	**0,005**	**0,002**	**0,042**	**0,027**	0,788	**0,049**
Service individualisation								
Not individ.	**3,3**	**5254**	**5,8**	**0,9**	**4,9**	**1,0**	**1,1**	**0,1**
Individualised	**5,5**	**10869**	**11,6**	**3**	**2,2**	**5,4**	**2,9**	**3,3**
Sigma	**0,000**	**0,014**	**0,000**	**0,000**	**0,012**	**0,000**	**0,000**	**0,001**
Communication / news								
Not provided	**3,1**	5746	**6,3**	**0,9**	**11,1**	1,2	1,2	1,0
Provided	**4,9**	8937	**9,6**	**2,3**	**2,9**	3,8	2,2	2,8
Sigma	**0,002**	0,216	**0,007**	**0**	**0,042**	0,238	0,075	0,442
Use of social media								
Not used	4	7517	**7,9**	**1,6**	**3,8**	2,8	**1,6**	**1,5**
Used	6,9	10313	**13,1**	**3,9**	**0,8**	8,4	**4,1**	**5,0**
Sigma	0,502	0,507	**0,046**	**0,001**	**0,015**	0,133	**0,04**	**0,008**

Remark. Mann-Whitney U-test significance level 0.05

There are meaningful differences when testing the CUs on e-transparency dimensions as financial disclosure (on site) and service individualization, provision of news and use of social media. CUs that provide financial reports and more specific information on services on Web site may be characterized as larger unions acting in larger cities

and also providing more detailed information and using more ICTs on their sites (Table 6). The more active communication is maintained and news for members and public are provided by CUs acting in larger cities and also providing more explicit information. The CUs that use social media can't be characterized by place of activities or size (assets), but may be described as the ones that provide more explicit information on services, general and timely information and are leading in use of Web technologies (Table 6).

E-transparency measures – presence of information, use of ICT and social media – were tested in relation with CUs main characteristics. Correlation results allow to conclude additionally, that larger CUs acting in major cities provide more detailed explanatory notes and financial reports, more explicit information about CU's activities and services (Table 7). However the timely and latest information provision is made by larger CUs with no statistically meaningful relation to place of activities.

Table 7. Relationship of e-transparency measures and CUs' characteristics

	Explanatory notes	**Reports**	**Mandatory ratios**	**Information**				**Web tech-nologies**
				General	**Time**	**Specialised**	**Services**	
Assets	**,249***	**,461****	,235	**,314****	**,448****	,137	**,322****	**,148***
Capital	**,290***	**,477****	,203	**,272***	**,360***	,126	**,293***	-,016
Members	,277	**,397****	,089	**,327***	**,394***	-,100	,006	-,223
Profit/Loss	-,043	,011	-,074	,049	,136	**,234***	,144	,089
Place	**-,270***	**-,281***	-,209	**,432****	,278	**,395****	**,380***	-,062

Remark. ** p 0.01; * p 0.05.

The CUs providing specialized information (that is of greatest importance when measuring e-transparency) are the ones which main offices are in larger cities, and, in case of 2013 year results, are more profitable (Table 7). The use of web-technologies has weak relation to assets, meaning that larger CUs have tendency to use more ICTs, but is indifferent in relation to profitability and place of activities. The use of social media had no statistically meaningful correlations, thus CUs using social media more extensively cannot be characterized by size, profitability or place of activities.

The main criteria disclosing the e-transparency dimensions – provision of general and specialized information, use of web technologies and social media – are presented in Figure 4. The share of CUs satisfying the researched criteria disclosed that most CUs provide general information about services (types, fees, payments), provide news on their site, but provision of more detailed information, especially specialized one, is rare. The comments of financial statements are made only by 7 % of CUs. Thus the content may be described as pour. The presence of internet sites and some technologies used proves that CUs have the potential to be more transparent and comparatively at low costs (especially for CUs that use the site of LCU). The social media is rarely used by CUs – only 13 % are active, having at least one channel used. It may be explained by type of CUs clients and their disinterest in e-communications.

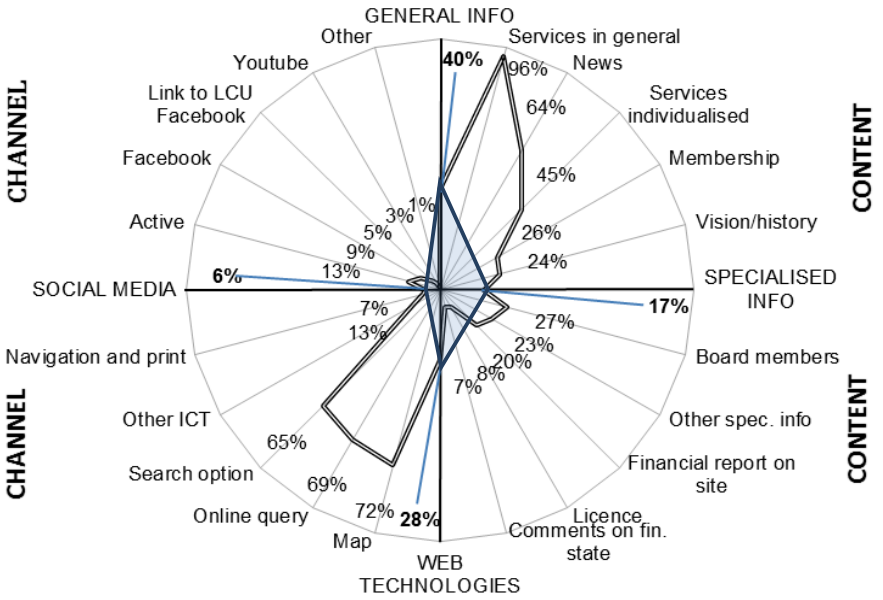

Fig. 4. E-transparency of CUs: presence of general and specialized information, use of technologies and social media.

The data of Figure 4 and total mean values from Table 6 contribute to the conclusion that e-transparency of CUs, as tested in this research, is average, even if social media criteria would be excluded.

Consumer credit enterprises (CCEs). The first review of consumer credit market was made for 2011 by Lithuanian Bank, the quarterly data are presented starting 2013 (LB, 2014b). The only data naming the enterprises is when presenting the market share of small loans (up to 290 Euros), other data are summarized for the whole market.

The market growth in 2013 was slower compared to 2012: in 2013 CCEs provided 17.2% more credits and increased the loan portfolio by 16.7 % (70% and 32% in 2012 respectively). The largest growth was in provision of other large (more than 290 EUR) credits. In 2013 as in 2012 the growth was higher in other, not lease, institutions. The main problem of consumer credit market: delay of payments, especially in case of small loans (Table 8). There were 23 % of credits by number and 29 % by value with delay longer than 60 days (20 % and 28 % in 2012 respectively). The default rate of small consumer credits is the highest: 33 % by number or 78 % by value (29% and 97% in 2012 respectively). The delay longer than 90 days has increased significantly – 47 % by number and 42 % in value compared to 2012. The situation with delayed payments is worse in 2013. The users of small credits are young persons (39 % younger than 25 years). This situation poorly affects financial stability, but rises heavy social problems.

Table 8. Statistics on consumer credits provided and delayed in 2013, % by number and value (LB, 2014b)

	% from total value	% growth per year	# of contracts, % from total	Delayed payments by value, %	Delayed payments by number, %
Overdraft	2	-48	1	36	25
Credits through trade intermediaries	52	8	43	6	10
Other large (more than 290 EUR)	50	**36**	32	41	28
Other small (less than 290 EUR)	**12**	9	**41**	**78**	33
TOTAL	100	16	100	29	23

Remark. Delayed payments more than 60 days

The average weighted annual price (interest rate) of small consumer credit was 164 % (the highest possible by regulation is 200 %) and average weighted interest rate 99 % (177 % and 105 % in 2012). The market of small consumer credits is highly concentrated: one institution serves 50 %, and five largest – 75 % of the market. The consumer credit market regulations have tightened and further the proposal is discussed in order to strengthen the risk valuation function, to control the information in advertisements, to lower the annual loan price.

5. Conclusions

The main findings of e-transparency level of banks may be characterized as contributing to legal requirements. Voluntary presentation of data is mostly related to the size and profitability of the bank. Although the performance measures are not much indicative as larger banks can be less profitable than smaller ones. The major banks are branches of larger international institutions, thus data on e-transparency is hardly comparable by the dimension of capital ownership. The innovativeness of ways used for information dissemination is valued as average compared to IT possibilities, as it is provided in simplest ways (although in prominent place).

Research results allow concluding that e-transparency culture and organizational innovations are under development in case of CUs, mostly because of still limited use of ICTs in remote regions by majority of CU clients, and because of the nature of CUs – small unions acting on cooperation principles with limited financial resources. Thus the use of IT potential and innovations is a challenge for CUs in the nearest future.

Consumer credit providers may not be research on e-transparency as only service information is provided on sites and the reviews of supervisory authorities include market development analysis, without presentation of data on separate CCEs. It is important to note that market experiences rapid development with the problem of heavy delays. It rises not as much financial stability but social problems.

The limitations of this study provide avenues for further research. The longitudinal research would give evidence on intensity and direction of e-transparency culture development. It would be worth improving the methodology by qualitative dimensions, not only testing the presence of content and channel characteristics. It would be worth to examine the internal organizational structure of finance institutions and then compare with e-transparency level. It would help to develop new knowledge for organizational innovation practice. The methodology developed and used in this

study is for a single country, but may be adopted for a group of countries as well. The comparison of e-transparency level in different countries, defining differences by external and internal factors as region, financial stability, use of IT and type of finance institution, ownership, size, internal structure and organization practice would give significant conclusions and policy recommendations.

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Advancing an Innovation Orientation in Organizations: Insights from North American Business Leaders

C. Brooke Dobni[1], Mark Klassen[2]

[1]Professor of Strategy and PotashCorp Chair for Saskatchewan Enterprise, Edwards School of Business, University of Saskatchewan

[2]Assistant Professor of Accounting, Edwards School of Business, University of Saskatchewan

dobni@edwards.usask.ca, mklassen@edwards.usask.ca

Abstract. The word innovation is widely referred to in business circles as the next level of competitive advantage. However, for many organizations today, it lacks tangibility as managers struggle with developing an innovation orientation that provides sustainable value creation. Using a mixed methods research approach, the aim and contribution of this paper is to report the qualitative findings of Fortune 1000 (F1000) organizations concerning their efforts to implement innovation agendas. Over 1100 business leaders were surveyed, which proves to be one of the largest surveys of innovation to date amongst the F1000. This article sets out to answer three basic questions as it concerns the implementation of an innovation agenda in organizations. These questions include: What does innovation mean to organizations? What has been the biggest challenges to introducing and sustaining an innovation orientation? And what has worked well in supporting an innovation orientation? What we have discovered is that leaders' thoughts on innovation are anchored on the need for changing the status quo and trying something new. They are also particularly aware of the correlation between innovation and performance. The change theme is further echoed as the predominant barrier to change. That is, breaking the inertia of the status quo is seen as one of the top barriers to innovation. Further, our findings identified six common challenges to introducing, executing and sustaining innovation. These barriers revolve around resistance to change, organizational process, leadership, funding and resources, the external environment, and customer adoption. Finally, there are a cluster of activities that have worked well to support successful implementation of an innovation orientation in organizations. Important activities such as leadership for innovation, knowledge management, organizational structures and processes, and aligned performance management were identified by leaders as noteworthy to successful innovation.

Keywords. Innovation, Implementation, F1000

1. Introduction

One of the world's greatest modern day innovators, the late Mr. Steve Jobs weighed in on innovation in 1998, when he asked whether we were 'getting it'? This is a valid question as research shows that organizations still struggle with innovation. For example, a recent industry study undertaken by Accenture (2013) revealed that only 18% of executives believe their company's innovation efforts deliver a competitive advantage. Both Mr. Job's insight, and the Accenture study among others, take on an even greater significance in a time when North America continues to struggle to sustain its GDP position amongst the world's largest economies (Economist, 2014).

Yet innovation is everywhere. Recently, the Wall Street Journal reported that the word "innovation" in the U.S. was used over 33,000 times in 2012 in quarterly and annual reports, that it has been in the subject title of nearly 300 books published

during that period, and that almost one-third of U.S. business schools use the word in their mission statement (Kwoh, 2012). This suggests that there are a lot of things we already know about innovation – but simply put, "are we getting it", or has innovation become a ubiquitous term? We set out to answer these questions, and more importantly, to find out what the major challenges are, and what works and what doesn't.

It seems that "getting innovation" has taken on a new relevance. What we do know for certain is that for organizations to remain competitive and to grow, they must innovate. Executives get this, and as a result, innovation is very much an emerging practice in organizations. In a recent survey done by the Boston Consulting Group (2014), three-quarters of the 1,500 global senior executives surveyed reported that innovation is among the top three priorities in their organizations, suggesting that leaders of these organizations view innovation as a critical pillar in achieving value creation. And more organizations today than ever are at the front end of an innovation system: innovation goals are being discussed, cultures re-jigged, and for the first time efforts are being made to tie performance metrics to innovation outcomes. Thus, the questions we posed prove to be very timely.

2. Why all of the Hype about Innovation?

Before we get into the findings, it is important to understand why there is so much interest in a concept that is so hyped, yet not very well understood from an implementation perspective. In the past decade, there has been renewed academic and practitioner interest around innovation in organizations, and in particular, the effects of an innovation culture on strategy and organizational performance (Christensen and Raynor, 2003; Govindarajan and Trimble, 2005; Hamel, 2002; Hammer, 2004; Senge and Carstedt, 2001). In addition to the studies highlighted in this article, many of the recent editions of the *Harvard Business Review* and the *Sloan Management Review* are almost solely dedicated to the topic. This focus is not surprising as innovation has been touted, for some time now, as the differentiator that will move organizations to the next level of competitive advantage (Amit and Schoemaker, 1993; Prahalad and Hamel, 1990).

The literature has developed to the point where we can begin to answer these questions. We now have a better understanding of valid measures of innovation culture through models which have been adequately validated across industries (Dobni, 2008; Wang and Amhed, 2004). We also know what constitutes innovation success (Alegre et al., 2006; Griffin, 1993; Jonash and Sommerlate, 1999). Further, there is a good deal of literature to support the relationship of innovation and performance in organizations (Nambisan, 2013; Wong, 2012; Jimenez-Jimenez and Sanz-Valle, 2011; Dobni, 2010; Dobni, 2011). The challenge now becomes one of how does an organization manage its innovation orientation, and how can leaders effectively implement an innovation agenda?

Innovation is important for many reasons, and one of the most compelling is its relationship to organizational performance. Enhancing the innovative ability in organizations is one of the most important levers to increasing profitability and growth in organizations. To illustrate this, studies undertaken by leading American consulting organizations suggest that there is huge untapped potential to improve profit growth through innovation management. For example, an Arthur D. Little study (2013) of over 650 organizations found the top quartile innovation performers obtain a 13% higher profit than the average performers. Additionally, the top performers had a 30% shorter "time to break even" for new services and products. A study by Booz and Company (2014) found that organizations who have a strong alignment between

their business and innovation strategies outperform their peers, including a 40% higher operating income growth over a three-year period and 100% higher shareholder return. These are significant numbers, and as a result, it is no surprise that innovation is high on corporate agendas. Further, a more controlled study by Dobni (2011) revealed that an innovation orientation is related to organizational performance overall. In this study, he concluded that high innovating firms had a positive relationship with the top line growth, customer satisfaction, bottom line growth, and profitability. Alternatively, organizations possessing low innovation orientations had significant negative correlations with return on investment, firm performance, and overall enterprise value.

3. Methods

Our research follows a mixed methods approach (Tashakkori and Creswell, 2007) as we utilize a survey to collect both quantitative data and qualitative data. Using both quantitative and qualitative approaches increases the credibility of the research findings (Nachmias and Nachmias, 1987: p.207, Yin, 1994: p.69, Silverman, 2003:p.233) in particular by extending findings beyond those observable using a single method (Grafton et al., 2011). Although "mixing" research methods has been criticized as inconsistent from a epistemic and ontological foundation perspective (Johnson and Onwueguzie, 2004), a pragmatic research philosophy argues that using all approaches to understand the problem will avoid a narrow research perspective (Grafton et al., 2011, Branen, 2005, Cressell and Clark, 2007). Establishing validity and reliability in a mixed methods approach is important (Ihantola and Kihn, 2011). As such this section explains matters pertaining to validity and reliability in our research methods.

The qualitative section of the survey instrument was preceded by a series of questions to measure innovation culture. In a mixed methods approach, it was important to anchor the qualitative assessment to a reliable and valid understanding of innovation culture. This assessment allowed the researchers to gain a perspective of innovation culture, which then guided the coding protocol. The approach for measuring innovation culture is further delineated below.

3.1. Quantitative Survey Methods

To impart a meaningful analysis, and to maximize participation of busy executives, it was important to have a manageable survey – knowing that we required responses in both areas (quantitative and qualitative) to support the mixed methods approach. These constructs displayed the highest variance explained in support of the factors in the Dobni (2008) model (see Figure 1). The diagnostic was developed through extensive theoretical inquiry and has been empirically tested. Based on previous research, the metric has been validated by a factor analysis and is considered valid and reliable (Dobni 2008, Wang and Ahmed 2004). In addition, the diagnostic has previously been used by approximately 800 companies over a seven year period. This model measures the intention to be innovative, the resources to support innovation, knowledge management behaviors necessary to influence a market/value orientation, and the environment to support the execution of innovation. The initial model was comprised of 69 constructs to measure 12 drivers of innovation, however for this research, given the knowledge that the sample included extremely busy executives, the 19 constructs that displayed the highest variance explained across the 12 drivers were used. The metric is valuable to not only measure the state of the innovation culture, but as the F1000 study results will show, can be beneficial to guide implementation activities. Each of the factors in the model were briefly described to

the sample. Each of the drivers are introduced in Table 1.

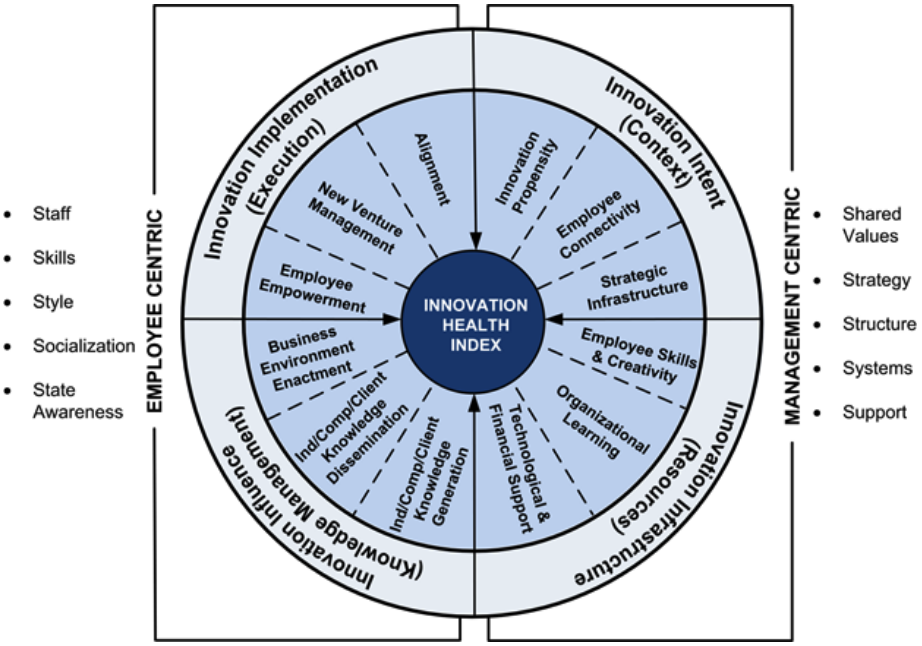

Fig. 1. 12 Drivers Innovation Culture Assessment Metric

Table 1. The 12 Drivers of Innovation

DIMENSION: CONTEXT	
Innovation Factor	Explanation
Innovation Propensity	The degree to which the organization has formally established – within their business model – architecture to develop and sustain innovation. This would be communicated through vision, goals, and objectives, and adopted by the senior leadership team.
Employee Connectivity	This involves how employees think of themselves vis-à-vis their colleagues. For example, do they feel that they can contribute? Do they feel valued and equitably treated? Do they trust and respect management? Do they resonate with what the organization is doing, and are they working together to achieve the vision?
Strategic Infrastructure	Infrastructure for the purposes of innovation involves the business model employed to support the strategy process and innovation overall.
DIMENSION: RESOURCES	
Employee Skills and Creativity	The extent to which employees have the skills to be innovative. This includes levels of personal creativity and the surrounding environment (time and space) to allow their skills and creativity to be utilized.
Organizational Learning	Properly tooling employees involves committed education and training programs that focus on developing processes that facilitate the learning of new behaviors, and then post training reinforcement.
Technical and Financial Support	The extent to which the organization provides resources (financial, time, people, other) to support innovation initiatives.

DIMENSION: KNOWLEDGE MANAGEMENT	
Knowledge Generation	The environment to support knowledge generation by employees from all stakeholders of the company including industry and organizational value chain knowledge.
Knowledge Dissemination	The environment to support the dissemination of knowledge to the right people on a timely basis.
Business Environment Enactment	The ability of employees, based on knowledge generation and dissemination, to understand the dynamics of their business environment in efforts to define value-added projects and initiatives. These advantages can be identified by observing and understanding the industry, competitors and stakeholders, emerging technology, channels, knowledge flows, and future cluster development.
DIMENSION: EXECUTION	
Employee Empowerment	This involves the psychological empowerment of employees and their perceived ability/confidence to undertake autonomous actions that contribute to value creation.
New Venture Management	This involves the level or degree to which employees can pursue what appear to be opportunities or initiatives with less certainty than they are traditionally comfortable with or for which policies allow for (i.e. intrapreneurial activity).
Alignment	This is a measure of alignment to support desired innovation-related behaviors. For example, the performance management and management control systems, and the alignment of innovation strategy with the organization's strategy.

The 19 scale items across the 12 factors displayed eigenvalues greater than one and accounted for nearly 72% of the explained variance. Kim and Mueller (1978) observe that an "eigenvalue 1" criterion is one of several rules-of-thumb available for addressing the number of factors in question, and that combining it or supplanting it by other rules such as criterion of interpretability is a legitimate approach. Reliability testing was undertaken to refine the factor measures. The general approach taken was to evaluate each construct in respect to its reliability contribution to the culture assessment. The primary method chosen to assess reliability was the internal consistency method (Nunnally, 1978; Peter, 1979). In practice, this method dominates in part because it requires only one instrument and one administration. This, combined with the problems associated with other methods (test re-test method and the alternative form method) made it a logical choice. In the end, Cronbach's alpha (Cronbach, 1970) coefficient was considered as the ultimate measure of reliability as it has become the most universally adopted approach for single instrument, single administration methods. Factor loadings displayed coefficient alphas ranging from .72 to .91; all greater than .70 - as recommended by Nunnally (1978).

3.2. Validation Analysis

The validity of a measure refers to the extent to which it measures what is intended to be measured. Given that this model employed a factor analysis, two different types of validity were considered, content validity, and construct validity. Each of these as it relates to this index is further discussed below.

In respect to content validity, a measure can be said to possess content validity if there is general agreement among the subjects and researchers that constituent items cover all aspects of the variable being measured; therefore, content validity depends on how

well the researchers create items that cover the content domain of the variable being measured (Nunnally, 1978). Although the judgment validity is somewhat subjective, the procedures used are consistent with ensuring high content validity. The constructs developed for the 12 driver's model were derived from an exhaustive review of the literature and detailed evaluations by both academics and practitioners alike. This process lead to a refinement of the constructs used, and in the final analysis, pretest subjects indicated that the content of each factor was well represented by the constructs employed.

Construct validity is concerned with the extent to which the theoretical essence of the measure is captured. In this case, construct validity was evaluated by examining convergent validity. This analysis revealed a strong correlation among the 12 factors which indicated that they were converging on a common underlying construct. All of the correlations exceeded .70 and all were significant at P<.001. Convergent validity was also indicated by the high alpha (.79) attained when the score on a one factor solution in an exploratory factor analysis (eigenvalue = 3.5, and 55.2% variance explained).

3.3. Sample

The primary objective of this research was to develop an understanding of innovation culture and the issues associated with the implementation of innovation. To this end, the sample was designed to target senior manager and higher level employees. This is consistent with the approach suggested by Selltiz et al. (1976) and Nunnally (1978) that the subjects used should be those whom the instrument was intended. These respondents are the ones that are most likely the architects of the environment for innovation and the ones whose behaviors will be most influenced by an innovation orientation. The sample included employees from F1000 organizations. The F1000 is a listing created by Fortune magazine detailing the 1,000 largest companies in the U.S. based on revenues. Since revenues are the basis for this ranking, only companies that make revenue figures publicly available are eligible for inclusion on the list. The F1000 criterion also contributed to the development of a homogeneous sample, or a collection of respondents who has similar organization "status".

A sample list matching the established criterion was purchased from ConsumerBase LLC in Chicago. From the initial list of 50,000 subjects that met the management level cut-off, 20,000 names were randomly chosen, and invited to participate in the survey via an electronic invitation which included the survey link. Data were collected between January and July, 2012, and resulted in 1,127 useable responses.

3.4. Qualitative Methods

As discussed, the survey included three open-ended questions which were analyzed using content analysis techniques based on the guidelines of Nachamias and Nachamias (1987), Miles and Huberman (1994), Smith (2003) and Ryan et al. (2003). Consistent with approaches advanced by Miles and Huberman (1994), we used several matrices to display the data to highlight both consistency and differences across responses. This initial procedure was deductive in efforts to develop a set of themes to be used for categorization within each question forming the subcategories. Generally, this procedure was performed until there was a saturation of subcategories. Definitions and explanations that were logically consonant were created for the subcategories to facilitate the coding process and increase consistency and reliability (Ryan et al., 2003). Using selective coding, the components of each subcategory were identified. We then grouped each response from the open-ended responses into the subcategories, matching the actual survey question response to the subcategory. To address construct validity, two researcher teams consisting of the authors and two

PhDs familiar with the research and survey independently performed the coding procedures at the sub-category level. Coding checks resulted in coding agreement in over 90% of the cases, an acceptable level for qualitative research (Miles and Huberman, 1994). Further the open-ended questions were included in the piloting of the survey with individuals who would be considered similar to the sample survey respondents and adjustments to the questions were made (Smith, 2003), including reducing the number of open-ended questions. Although generalization is difficult with qualitative research (Yin, 1994), external validity is increased with the qualitative responses in that the respondents were all senior level management with F1000 organizations as described above. The final data set included 292 responses for question 1 (What does innovation mean to your organization?) coded into 5 themes; 280 responses for question 2 (What has been the biggest challenges to introducing and sustaining an innovation orientation?) coded into 6 themes; and 110 responses for question 3 (What has worked well in supporting an innovation orientation?) coded into 6 themes.

4. Results

4.1. Quantitative Findings

Although the focus of this article is on the qualitative findings of the F1000, the quantitative findings provide a baseline perspective that provides a lens for the findings and conclusions as it concerns the qualitative data[1]. We can conclude from the empirical data that F1000 organizations are likely average when it comes to innovation. Figure 2 provides an overview of the survey results by innovation driver. The average score for the F1000 organizations is 68%. Our view of the F1000 being "average at best" is consistent to other global rankings which puts the US ahead of countries such as Canada and the EU 27 average but below countries such as Sweden, Finland and Switzerland (The Global Innovation Index, 2014; European Commission, 2014), indicating that there is room for improvement.

Interestingly two of the highest scoring drivers in the survey were employee related. Employee empowerment (81%) and employee skills and creativity (73%) scored above average. In relation to the other drivers, this suggests that employees, if given the chance, have the ideas and creativity to be innovative. Lower scoring drivers such as alignment (60%) and new venture management (62%) suggest that organizations are not doing a good job at moving ideas forward, and in particular aligning strategically important areas with employees' innovation efforts. Further, organizational learning (63%) also scored low suggesting that the organization is not learning to the extent that it needs to advance innovation efforts.

The three drivers related to knowledge management were descriptively different. Organizations did a better job at generating knowledge (74%) then they did at disseminating knowledge (68%) and using knowledge to make decisions or enact in their business environment (67%). The lowest scoring driver related to strategic infrastructure (at 59%). This is the infrastructure needed to support innovation,

[1] Findings and discussion of this research can also be found in an unpublished summary report on the Author's (Dobni) website. The information for this website can be found under Dobni and Nelson (2013) in the References.

including the business model employed to support the strategy process and innovation overall. Once again, this low scoring driver is not related to the skills, creativity and empowerment of employees, but to larger structural issues within the organization.

We also found a slight perception gap in the survey results. Specifically, higher ranking survey respondents (C-suite) on average had a 3% higher score than lower ranking respondents (directors and managers). The gap is noteworthy in that innovation efforts "in the eyes" of senior management may not necessarily be what is occurring within their organization, that is, they may be overestimating their innovation orientation.

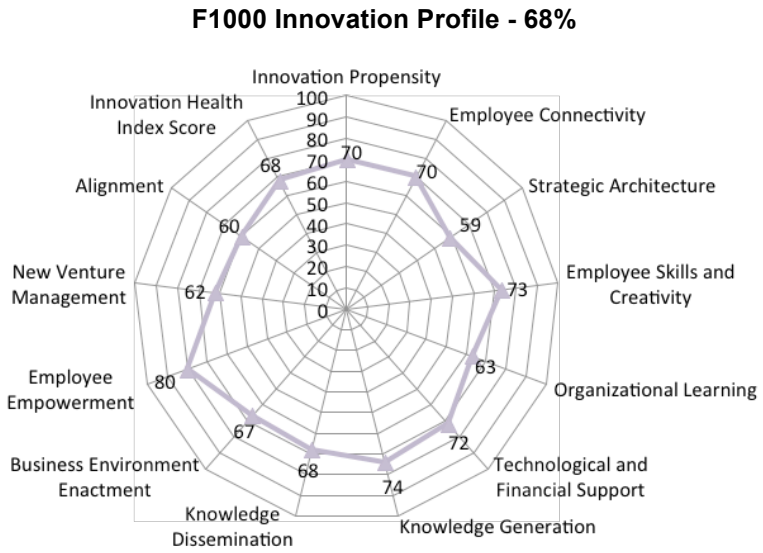

Fig. 2. F1000 12 Drivers Innovation Culture Profile (n = 1127)

4.2. Qualitative Findings

We have concluded on the basis of the quantitative findings that innovation amongst the F1000 is comparatively average at best, and there is room for improvement. This is consistent with other recent findings. For example, a Boston Consulting Group (2014) study found that 75% of American companies viewed innovation as extremely important, yet a previous study found that less than 20% of organizations considered themselves to be successful at creating and sustaining an innovation environment (Arthur D. Little, 2013). Why is this the case, and why do organizations continue to struggle with innovation? We shed some light on these issues through the results of the qualitative findings.

Question 1: What does innovation mean to you? One of the challenges for organizations today is understanding what innovation is, and more importantly, how innovation can benefit them specifically. The DNA of innovation is grounded in almost every functional discipline of management and includes such things as innovation leadership, context to support innovation activity, knowledge management, and execution of innovation. There are frameworks and matrices abound outlining the spectrum of innovation which range from one dimensional, for example, a new product development focus, to multi- dimensional and disruptive,

forces of which attempt to set existing industries back to zero, or create such value that entire new industries are spawned.

Innovation as a descriptor is so widely used that its reference has become somewhat generic, therefore the issue of intangibility that many organizations face today. Specifically, if you do not understand it, you will not be able to implement it. The literature conceptualizes innovation in a variety of ways, however most of the definitions imply the adoption of a new idea or behavior (Cordero et al., 2013; Jimenez-Jimenez and Sanz-Valle, 2011). Definitions of innovation found in the literature also vary depending on the context and scope of the analysis. Some definitions are quite general – for example, to have creative employees, and others quite specific – referring to the types of behaviors and specific roles engaged by employees. In an organization environment, examples of innovation are often expressed through a tangible action or an outcome that is linked to a behavior or activity. Examples of this include the implementation of ideas surrounding new product/services or modifications to existing ones, restructuring or cost savings initiatives, enhanced communications, personnel plans, new technologies, and unique employee behaviors or responses to unscripted situations (Martins and Terblanche, 2003; Robbins, 1996; West and Farr, 1990). In these situations, the metric for success is dependent on the nature of the outcome itself.

Similar to academic literature defining innovation, the qualitative responses from North American executives were varied and diverse in response. The following 5 themes were developed based on the 292 responses. Following, we have provided these themes, as well as a brief description of each.

Theme 1: New, different and change. Consistent with theoretical definitions (Cordero et al., 2013; Jimenez-Jimenez and Sanz-Valle, 2011, West and Farr, 1990), executives associated innovation with doing something new, something different, or a change from the status quo. The context of the qualitative responses varied but the words, "new, different and change" were the top descriptors to the question. For example there were many comments similar to, "Innovation means taking a lead in trying something new". Not surprising this definitional insight resurfaces when leaders were asked about the biggest implementation challenge. Breaking the organizational inertia and resistance to change was the top barrier to implementation.

Virgin Galactic is an example of one organization that has embraced change to a level of creating a new industry. The British owned company was an extension of Richard Branson's Virgin Group portfolio of diversified companies primarily. Virgin Galactic's business of providing tourism space travel is "new" to the extent of creating value from a unique product offering that did not currently exist. Whether the change is as bold as creating a new industry or smaller scale such as overhauling an internal process, the new and change theme is sacrosanct to organizational leaders' perspective on innovation.

Theme 2: Linking Innovation to Performance. Many executives included a linkage between innovation and performance in their comments. "Performance" was described in a variety of words including profit, value creation, competitive advantage, industry leader, success, sustainability and survival. Similar to research (Christensen and Raynor, 2003; Govindarajan and Trimble, 2005; Hamel, 2002; Hammer, 2004; Senge and Carstedt, 2001), the general notion was that innovation, however it was defined, leads to enhanced market and financial performance. This is not uncommon as there is an expectation that the most innovative firms lead their respective industries. We highlight some of these firms in sections that follow.

Organizations such as Apple, Nike, Google and General Electric consistently are recognized as some of the most innovative companies in the world. Their longevity and sustained ability to generate value are visibly noticed by leaders and were

identified as examples in the qualitative responses in the survey. Likewise, there are examples abound of organizations who have failed to maintain an innovation orientation. Blackberry, Kodak, Nortel, Kmart and Blockbuster are good examples of organizations once thought to be leaders in their industry, which did not successfully innovate in response to a changing environment.

Theme 3: Cultural and Behavioural. Executives also linked innovation to the culture of their organization and the behaviour of the employees consistent with culture being the linchpin to behavior management as described by Schein (1984). Innovation is a culture, and the generally accepted notion of culture is the collective actions (and reactions) of employees based on how they think. These behavioural outcomes can be a source of competitive advantage as culture is very difficult to imitate, unlike strategy, where the productive lives of competitive strategies are shortened as a result of the competitor's ability to copy and implement them.

Whirlpool is a good example of an organization that adopted innovation as their culture, and there culture has become their strategy – effectively crowning innovation as their strategy. In the early 2000's, Whirlpool made a decision to fundamentally change the way they do things. They felt that the best way to do this was to engender an innovation culture in everything they do – from idea generation through to manufacturing and customer relationship management. It was a multi-year plan that was not without risk. In the end however, and with perseverance, they fundamentally changed the way they the organization operated. Whirlpool's 10 year quest toward enterprise innovation, where they have proven the axiom that the culture eats strategy, has its proof in their results. In Whirlpool's example, where home appliances have assumed a commodity-like status, they have been able to differentiate themselves from competitors to the point where their market capitalization has over tripled in the past year alone.

Theme 4: Enterprise Oriented and Risk-Based, and Entrepreneurial Activity. For many executives, innovation is enterprise oriented as opposed to one dimensional, and can reside in a change of ideas, processes, products and procedures, consistent with West and Farr's (1990) definition. From an enterprise oriented perspective, respondents articulated multiple aspects of their business such as processes, products, services, technology, people and business models.

Executives also felt that innovation is related to risk taking and having an element of entrepreneurship amongst employees. For example the comment 'thinking outside the box and willing to take risks', illustrates how many executives added the risk taking notion to their qualitative answers. Comments generalized that employees are more enterprise oriented and entrepreneurial than often given credit for, and that many attempts to express these behaviours are thwarted by control boundaries set by the organization. Adobe, an American software company, provides each employee that attends their innovation training sessions a red box kit which has everything the employee needs to execute an innovative concept. The red box includes a $1,000 credit card and specific steps to kick start their idea. In Adobe's case, there are no committees, approvals or oversight processes that inhibit the employee's ability to execute an idea.

Theme 5: Incremental and Leveraging Existing Resources. There were a number of responses that highlighted the need to leverage existing resources and improve upon current practices. An example comment related to this theme is, 'Innovation means looking at all the resources you have, around you, and available to you to enhance and achieve the goals of the organization'. This is a broad generalization, but might not be far off the mark. Research shows that 70% of innovation activities come from the core organization compared to 30% from externally related advancements (Nagji and Tuff, 2012).

Smith & Wesson, an iconic American gun manufacturer founded in 1852, faced tremendous external pressures from government who were enacting gun control legislation. Smith & Wesson looked internally as a solution and capitalized not on their ability to manufacture guns, but on their historical brand of security. This resulted in new product offerings such as security systems, advisory services and training.

Question 2: What has been the Biggest Challenges? We discussed earlier that innovation for many organizations lacks tangibility, which has led to a good deal of frustration amongst leaders. Specifically, if they do not understand it or are not sure how innovation will work (or what it can do) in their organization specifically, then early attempts at "becoming innovative" often fail or are abandoned too soon. In efforts to shed some light on this, we asked business leaders about their challenges. This question generated a lot of interest, with 280 leaders providing insight.

The following table categorizes the executives' responses (and frequency) by the six themes that emerged, and provides a sample response(s) to the question.

Table 2. What has been your biggest challenge around Innovation?

Theme (n=280)	Explanation	Sample Response
Inertia (26%)	Openness to risk, resistance to change, moving from status quo	**"**Our biggest challenge is cultural. Our organization lacks a history of successful innovation and has not yet committed to the effort and focus required to make innovation successful in the future."
Execution (26%)	Seeing innovation ideas though to fruition, performance measurement and incentives, processes and governance of innovation initiatives, information systems	"Our challenges include the process to vet ideas allowing only the strong to survive. If this step is too stringent we end up with too little innovation. If this step is too loose we end up with innovation that does not sell, leading to waste and a negative P&L." "Moving from prototype to scaled-diffusion is a big challenge, as is innovating with products."
Leadership (18%)	Senior management and corporate leadership, commitment to innovation, "walk the talk", setting innovation priorities	"Significant amount of effort is involved is involved in getting upper management buy in. Proof of concept is an important element in securing that buy in." "Currently our executives are very reactive instead of proactive to trends and new markets."
Funding & Resources (14%)	Funding and resources for investments in innovation, finding time to be innovative, skills and talent	"Our biggest challenge to innovation initiatives is resources. We keep trying to do what we've always done while at the same time with the same people look for opportunities to implement innovative processes."
External (8%)	The economy, compliance, regulatory and legal issues	"The fact that our world is heavily regulated and audited. We might want to innovate but cannot due to regulations or audit expectations." "The biggest challenge has been the poor economy."
Customer Adoption (6%)	Gaining customer input to drive innovation, customer acceptance of innovation outputs	"Biggest challenge is getting customers to take a chance on new/innovative ideas/technology. No customer wants to be serial no. 1 on a new product."

The themes in the table illustrate that one of largest barriers to innovation is the status quo inertia embedded in the organization. Interestingly as previously noted, leaders most commonly define innovation as "new, different and change". It would appear from the barrier question that cracking the "change" puzzle with innovation is fundamental to moving an innovation agenda forward. Leaders also articulated that the execution of moving innovative ideas forward also ranked as the largest barrier. In aggregate, the top two themes expressed a majority consensus that internal processes operating within the organization and the general resistance to change account for the largest barriers to innovation. Factors such as leadership, funding and resources, albeit important were secondary compared to the primary barriers of change and process. A smaller percentage expressed an opinion that external factors posed the biggest challenge, whether due to the economy, regulatory, or the customer's unwillingness to adopt new idea outputs.

Question 3: What has Worked Well? Innovation has worked well for many organizations, as evidenced by the Fast Company's (2014) listing of the world's 50 most innovative companies. This is a listing of organizations that "get it". They prove to be industry leaders; not only do they create new value on a consistent basis, they often redefine the competitive landscape. This listing of most innovative organizations includes long tenured companies such as Google, Apple, Nike and Dodge.

There are also other examples of industry leaders that are not as recognizable on the surface for their innovation pursuits, yet such efforts have been equally effective. For example, Wal-Mart's innovation platform around procurement and supply chain management - which has transformed retail, and Smith and Wesson's product portfolio management process, as previously discussed, is an example of shifting resources to take advantage of their brand identity. These examples of innovation happen on a daily basis, and sets the platform for systematic approaches to manage innovation efforts.

Interestingly, what has worked well almost mirrors the challenges that were identified by the sample in the previous question, suggesting that organizations that have had success with innovation have been able to address these challenges. Table 3 outlines what has worked well from the 110 responses that were received.

Table 3. What has worked well?

Theme (n=110)	Explanation	Examples
Processes - to execute innovation (28%)	Structuring processes to move ideas to completion	• Leveraging new tools and techniques (e.g. software development process) • Focus and build on incremental improvements or existing programs • Fast track processes for innovation projects • Adequately budgeting and funding initiatives/programs • Lean, continuous improvement, quality programs • Corporate competitions and innovation programs
Leadership - committing and demonstrating their intent to be innovative (26%)	Active senior leadership involvement to communicate the importance and commitment to innovation	• Trying new things that may not work and allowing failure • Encouraging "out of the box" ideas • Communicating the importance of innovation • Senior executives demonstrating passion towards innovation • Supporting and embracing change • Celebrating innovation success

Knowledge Management – related to developing a market orientation (19%)	Collecting internal/ external information and disseminating it to create and evaluate new ideas	• Understanding practices from competitors and other organizations • Looking to innovations in other industries • Acquiring customer information/intelligence • Integration of systems to obtain more complete information • Partnering with customers and suppliers for new ideas and/or product development • Collaborating with smaller innovative firms and universities
Organization Structure and Roles - to execute innovation (16%)	Creating organization structures and roles that promote empowerment, idea sharing and innovation execution	• Flat organization structures • Utilizing and empowering innovation teams (e.g. brand or product innovation teams) • Removing teams from their normal work environment • Recognizing individual innovation champions to promote innovation throughout the firm • Organization structures that are promote open communication
Performance Management - incentive and reward systems to support innovation on a systematic basis (7%)	Formalizing reward systems, goals and targets oriented towards innovation success	• Linking innovative accomplishments to performance reviews • Rewarding innovative effort whether successful or not • Establishing goals and targets for innovative initiatives • Innovative competitions, programs and teams are rewarded based on results.
Strategic Planning – alignment of strategic planning and processes with innovation goals (6%)	Leveraging the strategic planning process to entrench innovation as a core strategy	• Incorporating innovation into the strategic planning process • Communicating the vision and the imperative to be innovative • Using the strategic planning and portfolio review process to ensure strategic initiatives are innovative

5. Conclusions

What does this all mean? As starters, the absence of a well-articulated innovation strategy that outlines how the organization can address organizational inertia and process to support an innovation agenda are the largest constraints to companies in reaching their innovation targets. Limited organizational design, leadership for innovation, and knowledge infrastructure for innovation are also impairing growth in organizations.

Innovation efforts have to be identifiable and significant enough to signal to employees to think and act differently. This is also the tipping point where the culture begins to value enterprise innovation, and where organizations experience the objective correlative results on top-line and bottom-line performance. This would include value added customer focused strategies, a pipeline of new products and services, and more effective and focused systems, processes, and business models.

Moreover, there are two important concepts concerning innovation in organizations: the innovation to organizational performance correlation, and systematically managed innovation. Academic research has consistently shown a general relationship between innovation and performance does exist (Christensen and Raynor, 2003; Govindarajan

and Trimble, 2005; Hamel, 2002; Hammer, 2004; Senge and Carstedt, 2001), which has been further reported by many consulting studies (Accenture, 2013, Arthur D. Little, 2013; Booz & Company, 2014). The basic message is that innovation efforts if executed by organizations are rewarded through value creation. Understanding this correlation is critical for executives as they pursue an innovation agenda. Secondly innovation can be systematically managed. Research has shown the processes adopted impact the innovation culture of an organization (Drucker, 1991; Hellriegel et al., 1998; Robbins, 1996). The qualitative response themes (leadership, knowledge management, idea process, structure) are in the control of organizations allowing them to systematically manage innovation.

What North American businesses can benefit the most from at this point are investments in leadership and innovation training. It is apparent that employees are both empowered and creative, and the economy is not an obstacle; however there are significant hurdles, inhibitors, and distractors that need to be managed. It's a challenging environment, and the key question becomes one of how c-suite executives should focus their limited attention and resources on a handful of key drivers that support innovation. CEOs that get it have already have communicated a strong case for change, have cemented senior leadership commitment, and have thought strategically about the tradeoffs that will see innovation pursued on a holistic, integrated approach. Developing and sustaining innovation orientations will take bold leadership.

For those serious about advancing their organization's innovation agendas, we suggest the following foresight and best practices:

1. The organization has to be prepared to adopt innovation as a central theme. If an organization uses the concept of innovation loosely, then it will not have the necessary senior management support to get traction. To support this, there needs to be a clear "innovation strategy" that sets out what the organization intends to achieve through innovation, and how the organization will adopt an attitude of change to break down long-standing risk-adverse inertia. This must be clearly communicated and understood throughout the organization, and form the basis for start and sustainment of innovation discussions.
2. Innovation thrusts are long term investments, and it will take years, not months to embed sustainable change in the way employees think and act. Therefore organizations need to be patient as well as persistent in the pursuit of advanced innovation cultures.
3. Innovation culture needs to be measured so that an organization can establish a baseline understanding of their current innovation state and measure/monitor improvement over time. A culture assessment also enables the organization to develop effective innovation implementation activities that are focused and can be completed in realistic time frames in a cost effective manner.
4. It is important for the organization to develop a simple, robust and proven governance approach to innovation that allows the progression of ideas from initial stimulus through to implementation. Early (and quick) wins are essential in reinforcing the innovation program. Support mechanisms and resources need to exist in efforts to encourage the use of a consistent innovation process e.g. tools and processes, internal champions, teams or experts, formal training programs, and financial resources.
5. It is essential that a significant number of employees are involved in the innovation process either to drive innovation themselves or to support the progress of others.
6. Knowledge management is critical to support ideas around products,

services, and processes necessary to create strategic value from innovation. It is important that knowledge is not only systematically captured, but effectively disseminated to the point that information can be used by employees for innovation.

7. Finally, the support for innovation behaviors of employees must be embedded in the performance management system (i.e. results matter and employees need to be rewarded accordingly).

Notwithstanding our findings and observations, the contributions of our quantitative and qualitative research should be understood through the limitations of the research. The mixed methods approach of this study could be extended to better understand innovation implementation in organizations. Of particular interest would be to perform quantitative survey analysis on the qualitative findings of this research. That is, construct validity would be increased through the development of survey constructs specific to our three open-ended qualitative questions answered by survey respondents. Additionally, context validity would be improved through single or multiple unit case studies to better understand the contextual environment of organizations as they move forward with implementing innovation agendas.

Innovation will be key to global competitiveness and advancing the organization's agenda will be a first step in addressing the crisis drift in major economies. Although the discussion around innovation has reached epidemic levels, our findings would suggest that U.S. business is just beginning to catch the wave of innovation. An innovation orientation will be important to enable emergent strategy focus, execution, and organization agility in an environment of continuous change. As traditional competitive strategy portfolios become hygiene and the productive lives of standard strategic portfolios shorten, staying the course will no longer suffice in the pursuit of sustainable growth under high uncertainty. Strategy without innovation is no longer an option.

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Community of Practice as a Tool for Company Performance in Strategic Context

Ilpo Pohjola

University of Eastern Finland, Department of Business, Joensuu, Finland
ilpo.pohjola@tiedepuisto.fi

Abstract. The objective of this study is to examine communities of practice (CoP) as a strategic tool for expanding methods of collective learning and knowledge creation and sharing. Through the case study, I analyze how CoP increase personnel capabilities to improve company performance and achieve strategic goals. In this study, qualitative methods have been used to answer the research question 'How are communities of practice used as a strategic tool in the case company?' The literature related to CoP for strategic advantage is reviewed. Then, in the empirical portion, I describe in detail participant observations, document analysis and semi-structured interviews with experts from the case company. Based on the literature review and empirical findings, I construct the model for virtual collaboration in the CoP. The model provides practical guidelines for effective competence creation. Five organizational development areas are identified: (1) the strategy of a firm; (2) motivation to work in CoP according to the strategy; (3) knowledge creation and sharing through CoP; (4) feedback and benefits; and (5) strategy improvements and best practices (business processes). CoP findings indicate that the case company should work on all five development areas simultaneously. In conclusion, top management should encourage personnel to improve personal skills and support an open learning atmosphere. The main suggestion for improving virtual collaboration in the CoP on an organizational level at the case company is the establishment of informal networks. The relationship between CoP and their stakeholders should be strengthened because, in the absence of these relations, the collaboration will never begin. In particular, the case company should improve its social networks and encourage personnel to join CoP. This study paves the way for further research into experiments on the practical implementation of CoP.

Keywords. Communities of Practice, Knowledge Sharing, Virtual Collaboration, Company Performance, Innovation, Open innovation.

1. Introduction

This study examines communities of practice (CoP) as a strategic tool for collective learning and knowledge creation and sharing. Wenger (1998) asserts that knowledge creation in CoP occurs when people participate in problem solving and share the knowledge necessary to solve problems. New knowledge can be created through the conversion of explicit (visible, codified) and tacit (invisible, difficult to code) knowledge as a social process between individuals (Nonaka and Takeuchi, 1995). From a business perspective, tacit knowledge, which is embedded in individuals, is often the most valuable because it consists of embodied expertise and a deep understanding of complex, interdependent systems that enable dynamic responses to context-specific problems; more importantly, it is very difficult for competitors to replicate (Wenger et al., 2002). According to Chesbrough (2006, p. 44), there is an abundance of knowledge in virtually every field around us. The proliferation of public

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scientific databases and online journals and articles, combined with low-cost Internet access and high transmission rates, can give access to a wealth of knowledge that was far more expensive and time-consuming to reach as recently as the early 1990s. Chesbrough (2006, p. 45) argues that the rise of excellence in university scientific research and the increasingly diffuse distribution of that research means that the knowledge monopolies built by the centralized R&D organizations of the twentieth century have ended. Companies must structure themselves to leverage this distributed landscape of knowledge instead of ignoring it in the pursuit of their own internal research agendas. The sharing of tacit knowledge requires close involvement and cooperation, network relationships, face-to-face contacts, shared understanding and trust (Lam, 2000; Ardichvili et al., 2003). Tacit knowledge also requires informal learning processes such as storytelling, conversation and coaching, of the kind that CoP provide (Wenger et al., 2002). Through these processes, CoP members can increase their own understanding and add to their community's collective knowledge (Brown and Duguid, 1991, 1998). Appreciating the socially constructed nature of knowledge, McLure et al (2000) recommend that organisations consider a third perspective on knowledge: not as an object to codify or something embedded in individuals, but as social phenomena and an integral part of a community. According to Wenger et al. (2002, p. 6) cultivating communities of practice in strategic areas is a practical way to manage knowledge as an asset, just as companies systemically manage other critical assets (Prokesch, 1997; Hanley, 1998; Lesser and Everest, 2001; Cross et al., 2006; Probst and Borzillo, 2008).

Companies are not only competing for market share, they are also competing for talent-for people with the expertise and capabilities to generate and implement innovative ideas (Wenger et al., 2002, p. 7). These companies should discover the hard way that useful knowledge is not a "thing" that can be managed like other assets, as a self-contained entity; rather, they need to base their strategy on an understanding of what the knowledge challenge is (Brown and Gray, 1995; Wenger, 1999; 2004; McDermott and Kendrick, 2000; Barrow, 2001; Saint-Onge and Wallace, 2003; Anand et al., 2007; Wenger et al., 2002). Similarly they argue that what companies have been missing so far is an understanding of the kind of social structure that can take responsibility for fostering learning, developing competencies, and managing knowledge. From this perspective, CoP, embedded on open-innovation platforms, provide an appropriate tool to share and manage this knowledge internally and among the other stakeholders.

This study aims at answering the research question 'How are communities of practice used as a strategic tool in the case company?' Through the case study, I analyse how CoP increase personnel motivation and capabilities to improve company performance and achieve strategic goals. Achieving strategic goals requires new ways of knowledge harmonisation among different, mainly virtual, globally located business units and all stakeholders within the company. In this study, I constructed a model for virtual collaboration in the CoP.

2. Research settings and methods

The case company is a multinational corporation with seven global production units and eight R&D centres. It offers elevator installation, maintenance, repair and modernisation in the construction and engineering industries. The company expected growth driven by the recovery of Western economies and the continued expansion of developing markets in Asia Pacific and Eastern Europe. The growth was mainly expected to occur through acquisitions. The new strategy was launched in 2005 with the aim of growing by shifting from a total technology-focused strategy to a

competitive and innovative services and solutions strategy. To achieve the strategic goals, there was a need to create a new organisational culture and improve knowledge harmonisation, especially among global installation and maintenance personnel in different units worldwide, many with overlapping functions.

New business units around the world, e.g., process-based organisations, were expected to collaborate more effectively. The company has to restructure many of its former units as virtual organisations to cut costs, compile globally fragmented knowledge and harmonise its processes.

The company faces the challenge of creating the common knowledge, shared best practices and trust necessary to carry out its strategic intentions. Growth through acquisitions is challenging for sharing knowledge and transforming best practices. Vertical knowledge sharing appears difficult. Understanding strategic goals, creating mutual knowledge bases and implementing a company strategy in a new organisational structure are great challenges for the personnel. The growth of maintenance, modernisation and service revenue continuously stimulate the creation of new service businesses.

The case company has 3,200 supervisors working globally. The top management of the company identified this strategic group to run the change of knowledge harmonisation and transfer. They started the Supervisor Development Program (SDP), which aimed to implement an equal level of knowledge needed all over the world to run the strategy of the firm daily.

The SDP was launched to reorganise the different process-based organisations and harmonise global processes. The SDP can be seen as part of the CoP domain (see Wenger et al., 2002) that integrates people in the case company. It is aimed at applying an equal level of knowledge needed to coordinate the company's strategy in the daily work at the customer interface level. It was created to build relationships based on mutual respect and trust (see Wenger et al., 2002), and to encourage members to engage in joint activities and share ideas, information and knowledge. For the SDP, the researcher proposed applying the concept of CoP, through which best practices can be shared to create common knowledge for the creation of new business processes and strategy improvements.

In order to answer the research question, a two-year longitudinal case study approach was adopted. This single case study aims to expand the understanding of CoP in the strategic context and to provide experiences of applying CoP to improve company performance. Research was implemented in two different steps. First, before the adoption of the SDP, the researcher was observing, participating and working (later, pre-working) with the Global eLearning and Collaboration Department (GeLCD) in the headquarters of the case company to get answers to the research questions. Second, semi-structured interviews with the project personnel were executed. It is notable that global project manager (GPM) and other interviewees were located in different divisions of the company, and therefore their answers came from different kind of backgrounds.

The case company's internal and confidential archives and numerous observation periods in the GeLCD provided a lot of material for qualitative research. For the researcher, who comes from outside the company, creating an open atmosphere and trust between interviewers and interviewees was important. In co-operation with the managers of the GeLCD, the general overview of the company's organisational culture and knowledge exchange processes was gained.

The researcher took part frequently to the meetings of GeLCD. Sometimes meetings were on a weekly basis, at least every month. The most intensive interactions were between Global eLearning and the Collaboration Manager, Project Manager of the department and the researcher. In the beginning of the process, the researcher was an

observer, but during the process he was able to offer added value in creating the way to work for the SDP. Before the co-operation with the researcher, the SDP was planned to be rolled out as a traditional, one-way training program. After numerous meetings between the researcher and case company personnel, they created the final version of the SDP. The new way of knowledge harmonisation among different, mainly virtual, globally located business units and all stakeholders around the company based on the collective learning and knowledge creation and sharing through the CoP was created.

The researcher made all the interviews after launching the global rollout for the SDP. Interviewees were running the SDP in practice. During the interviews they were already able to see the influence of a new kind of training program and received a lot of feedback about it.

Four interviewees from the SDP virtual project group were selected in cooperation with the case company: a global project manager (GPM), technical trainer (TT), technical editor 1 (TE1) and technical editor 2 (TE2). All interviewees were active in CoP and work continuously in the different virtual networks. Interviews were conducted face-to-face and through virtual meetings via the Internet. Notes from every interview were made during the session and later supplemented on the basis of recordings. The interviews were compiled and analysed using qualitative analysis methods.

The interviewees were all working with the SDP in various roles. Some were leading and managing the process, while others were producing content for it. The interviewees' attitudes were very positive and harmonised with the SDP, and their answers were similar. They discussed the organisation's skills, opportunities and challenges in networking, collaboration in the virtual teams and working in the CoP.

After the case company launched its growth strategy and SDP, qualitative methods were used to determine how CoP can be used to achieve the company's strategic goals. Based on the literature review and empirical findings, a model was constructed for effective virtual collaboration in the CoP. In this study, participant observation and semi-structured interviews with personnel (who participated in the SDP) were performed. The case company's internal documents were also analysed. Comparing relevant theories to the case company's practice is the foundation of the study. Based on the data, results can be categorized into the following themes:

1. Strategic management in the CoP,
2. Motivation to implement the strategy of the firm in CoP,
3. Knowledge creation,
4. Feedback and benefits of CoP, and to
5. Strategy improvements and best practices.

The paper outlines the full context of the process so that the reader can understand how the case company succeeded with this program, the results of the program and what kind of improvements they should execute to implement their strategic goals better in the future.

3. Communities of practice in the strategic context

3.1. Communities of Practice (CoP)

Wenger et al. (2002, p. 4) defined CoP as 'groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis'. CoP provide the social

context (Correia et al., 2010) for collective learning through which people exchange knowledge based on their shared practices and collective identity (Wenger, 1998; Kirschner and Lai, 2007; Correia et al., 2010). Lave and Wenger (1991) originally described CoP as informal, self-organising entities with self-selecting members that occur naturally. Wenger et al. (2002) later revised this definition, stating that CoP could be created and may not be that informal. The original definition of CoP involved relatively stable communities of interaction between members working in close proximity to one another, in which identity formation through participation and the negotiation of meaning are central to learning and knowledge creation (Amin and Roberts, 2008). Today, some CoP have regular face-to-face meetings between members working in close proximity to one another (Amin and Roberts, 2008), while others are connected primarily by e-mail networks or Internet technologies, which allow virtual, real-time interactions and distant, dynamic and 'global' characteristics in the collaboration (McLure, Wasko and Faraj, 2000; Ardichvili et al., 2003).

Three key elements make CoP an ideal social structure for developing and sharing knowledge (Wenger et al., 2002): 1) a recognised domain of interest; 2) relationships based on mutual respect and trust; and 3) shared practices. Members of CoP can pool and share their expertise, test new ideas, improve past processes and procedures and find solutions that result in increased capabilities and improved performance for an organisation (Saint-Onge and Wallace, 2003). Wenger et al. (2002) recommend that, rather than formalising CoP into an organisation structure, they should remain somewhat informal, albeit sanctioned and supported.

A distributed community is any CoP that cannot rely on face-to-face meetings and interactions as its primary vehicle for connecting members argues Wenger et al. (2002, pp. 115-116). There are four factors which determine distributed community-distance, size, organizational affiliation and cultural differences. These factors are compounded and make building and sustaining communities significantly more difficult. Distributed communities are generally less 'present' to their members, and because of these barriers, it take more intentional effort to consult the community for help, spontaneously share ideas or network with other members (Wenger et al., 2002, pp.116-117).

Community size and geographical distance are not necessarily related (ibid). Wenger et al. (2002, p. 117) argued that size has implications for the way communities structure themselves, and when compounded with distance, size becomes an even more significant factor.

Large, global communities often have more trouble than local ones in getting senior managers with conflicting priorities to genuinely buy into the idea of sharing with other companies or business units, and idea sharing is complicated by the need to develop criteria for dealing with intellectual property (ibid.). Wenger et al. (2002, p. 118) argue that rather than creating a complex ownership system, managers should agree to share only knowledge that they think could be disseminated within the other member companies without adverse effect to their own companies.

Cultural differences can easily lead to communication difficulties and to misinterpretation, and successful distributed communities have to learn to address cultural differences without either minimizing them or stereotyping people (Wenger et al., 2002, pp. 118-119). Language differences also introduce a very basic barrier to communication and can intensify cultural boundaries, even when all parties agree to speak a common language (ibid.).

Communities are based on the connections of members and then the access to technology can be a barrier to communication (ibid.). If simple and advantageous connection is difficult, people are less likely to make the effort, at least not regularly (ibid.).

The design principles and processes we use for local communities also work for distributed ones (Wenger et al., 2002, pp. 123-124). Designing and nurturing distributed communities so they can overcome the barriers of time, size, affiliation, and culture requires additional effort in four key development activities (ibid.):

1. Achieve stakeholder alignment.
2. Create a structure that promotes both local variations and global connections.
3. Build a rhythm strong enough to maintain community visibility.
4. Develop the private space of the community more systemically.

According to Wenger et al. (2002, pp. 135-137), strong human relationships are key to integration across geographically distributed business units, as well as to creating effective partnerships and communities that can become a primary source of stability. CoP create a point of stability in a world of temporary, distant relationships, as well as the common talent pool that globalization requires (ibid.).

3.2. Strategic management in CoP

A company's competitive advantage is primarily embedded in its personnel's intangible, tacit knowledge (Nonaka and Konno, 1998). Thus, companies need to understand what knowledge will result in commercial success; they need to keep this knowledge on the cutting edge, deploy it, leverage it in operations and spread it across the organisation to generate capabilities (Teece, 2003). A knowledge strategy is typically developed with a business strategy, which is intended to lead a company through changes and shifts, securing its future growth and sustained success (Teece, 2003). The knowledge strategy specifies in operational terms precisely how to develop and apply the knowledge assets and capabilities required in executing the business strategy (Wenger et al., 2002).

Saint-Onge and Wallace (2003) suggest that CoP can be a key element of an organisation's knowledge strategy for increasing individual and organisational capabilities. Wenger et al. (2002) argue that using CoP in the strategic context is a practical way to manage knowledge as an asset systematically, just as companies manage other critical assets. CoP can provide value through their ability to develop new strategies complementing existing ones, and they provide a method to realise a business strategy (Swan et al., 2002). CoP can also keep abreast of market opportunities and their own practice development; thus, they can inform or enact new strategic initiatives. The knowledge dynamics of virtual communities are different from those of CoP that depend on social contact and direct engagement, because knowledge is transmitted electronically via interfaces (Amin and Roberts, 2008). Virtual CoP are often informal inter-organisational groups without the leadership of traditional teams or structured organisations (Wenger et al., 2002). A virtual organisation is characterised by collaboration between persons from different departments, units or even organisations. In this type of situation, an awareness of the firm's strategy is essential to reach assigned goals.

3.3. Motivation to implement the strategy of the firm in CoP

Saint-Onge and Wallace (2003) state that the challenge in running a company is creating an uplifting, motivating atmosphere among personnel. To achieve success, a company must enjoy strong links between individuals and organisational capabilities. The most effective link is between the mindsets of the individual and the organisational culture (Saint-Onge and Wallace, 2003). According to Burk and Sutton (2000), successful CoP are organised around the needs of their members; as such, they exhibit a wide range of sizes, structures and means of communication. By proactively cultivating CoP and providing structure and support, a company can

discover new ways to create value for the community, the company and its customers and partners, and the individuals involved in CoP (Burk and Sutton, 2000).

The key to successful CoP is the members' motivation to actively participate in knowledge creation and sharing activities-something which individuals typically resist (Ardichvili et al., 2003). The motivation to participate in CoP increases when an organisational culture encourages mutually supportive relationships between employees, and when employees view themselves as experts (Ardichvili et al., 2003). Thriving CoP can offer the following motivation factors (Burk and Sutton, 2000):

1. Find a means for frequent contact. CoP grow stronger with better and more frequent exchanges, which can include more frequent meetings, teleconferences, e-mail listservs and/or a virtual home base accessible through the Web.
2. Give it a name. Informal CoP may become stronger simply by adopting a name, creating and disseminating member lists and letting others know how to plug in.
3. Maintain a balance between experts and practitioners. A mix of knowledge levels and related disciplines in CoP membership can help the organisation innovate and develop staff skills.
4. Facilitate knowledge exchange. Recognised CoP facilitators can grow membership and help CoP identify and address their priority needs.

3.4. Knowledge creation

Communities of practice are particularly effective at turning information to knowledge since they deal with information on the basis of experience (Saint-Onge & Wallace 2003, p. 66). In a community, members give a greater meaning to information by applying their tacit knowledge (ibid).

The best way to create the access of tacit knowledge is through productive inquiry, getting to the core of an experience and understanding the many facets and nuances based on a need situated in practice (Saint-Onge & Wallace 2003, p. 67).

At a fundamental level, knowledge is created by individuals. An organization cannot create knowledge without individuals. The organization supports creative individuals or provides a context for such individuals to create knowledge. Organizational knowledge creation, therefore, should be understood in terms of a process that "organizationally" amplifies the - knowledge created by individuals, and crystallizes it as a part of the knowledge network of organization (Nonaka 1994, p. 17).

The assumption that knowledge is created through conversion between tacit and explicit knowledge allows us to postulate four different "modes" of knowledge conversion: (1) from tacit knowledge to tacit knowledge, (2) from explicit knowledge to explicit knowledge, (3) from tacit knowledge to explicit knowledge, and (4) from explicit knowledge to tacit knowledge (Nonaka 1994, p. 18).

The first step in the process is socialization. It contains sharing and creating tacit knowledge through direct experience among individuals; it contains sharing of experiences and learning from tested tradition.

The next step is externalization, where individuals are articulates tacit knowledge through dialogue and reflection in a group.

The third and very important step is combination. During it, explicit knowledge and information are systematized and applied by the groups. The organization documents and integrates knowledge to building structures and blueprints for a workable procedure. The last step for knowledge creation is internalization. The organization is then learning and acquiring new tacit knowledge in practice. They are making synthesis, adapting new knowledge, and fashioning new best practices.

Communities of practice can be a highly effective way of bringing together people who have an affinity of purpose and need (Saint-Onge & Wallace 2003: pp.71-72). With high-calibre facilitation, these communities represent the best way to let people tackle complex tasks with speed, creativity, and high trust what Nonaka refers to as "*ba*" (ibid).

For each of the four modes of knowledge, conversion can create new knowledge independently. The central theme of the model of organizational knowledge creation proposed here hinges on a dynamic interaction between the different modes of knowledge conversion. That is to say, knowledge creation centres on the building of both tacit and explicit knowledge and, more importantly, on the interchange between these two aspects of knowledge through internalization and externalization (Nonaka 1994, p. 20).

3.5. Feedback and benefits of CoP

CoP in the strategic context have three development perspectives (Chesbrough, 2006; West and Lakhani, 2008, p. 1) the members are highly committed to collaboration for solving the problems of their business and to increasing their performance capabilities; 2) while the members are an obvious focus of capability generation, the community as an entity provides the structure or space to which the members are drawn, and creates a repository that facilitates access to the community's explicit knowledge; and 3) the organisation is interested in supporting focused opportunities for employees to increase capabilities that will improve performance and achieve strategic goals.

For companies, the potential benefits of CoP include promoting collaboration, improving social interaction, increasing productivity and improving organisational performance (Wenger, 1998). CoP can drive strategy, generate new lines of business, solve problems, promote the spread of best practices, develop individual professional skills and help firms recruit and retain talent (Wenger et al., 2000). Other benefits include growing competencies in areas of high need, becoming more responsive to customers, capturing and sharing good practices and lessons learned through staff experiences, quickly increasing the productivity of new staff, sharing lessons learned and sparking innovations across CoP (Burk and Sutton, 2000). For CoP, benefits include increased idea creation, improved quality of knowledge and advice, problem solving and the creation of a common context. Individual benefits include improved reputation, increased levels of trust, increased access to experts and knowledge sources and a better understanding of what others in the field are doing (Millen et al., 2002). These benefits allow members to develop professionally, remain at the top of their disciplines and gain confidence in their expertise (Millen et al., 2002). According to Chesbrough and Brunswicker (2013), large firms have a preference for inflows of knowledge into their innovation portfolio. They argue that outbound activities play a secondary role. As they are interested in inflows of knowledge, inbound open innovation practices have been more important than outbound open innovation practices in 2011, even though the importance of the latter ones has increased from 2008 to 2011 (Chesbrough and Brunswicker, 2013). To implement their open-innovation practices, firms work with a variety of different innovation partners and sources, with customers and universities rated as the most important (ibid.). Companies take more 'freely revealed' information from others than they provide to others and they are 'net-takers'. Overall, executives consider the relational and explorative dimension of open innovation of high importance. Firms engage in open innovation to build new partnerships and to explore new technological trends and stresses (Chesbrough and Brunswicker, 2013).

3.6. Strategy improvements and best practices

Wenger et al. (2002) argue that it is important for CoP to create value by connecting the practitioners' personal development and professional identities to the organisation's strategy. Because strategy sets direction, focuses efforts and encourages consistency, strategy development focuses on creating a distinctive set of organisational capabilities that will meet market-driven demands (Saint-Onge and Wallace, 2003). According to Saint-Onge and Wallace (2003), the organisation's performance depends on the quality and reach of its strategies and its ability to provide the necessary individual and organisational capabilities that enable employees to take effective actions. They add that the ability to continuously gain new capabilities is at the heart of competitive advantage in markets characterised by rapid change. Wenger et al. (2002) argue that many companies have organised their own business processes according to common standards that participants have developed in the networks. They have access to online mechanisms for conducting business with suppliers. These types of arrangements can significantly reduce transaction costs and increase negotiation leverage with participants with regard to price, quality and availability. Wenger et al. (2002) add that beyond this transactional efficiency lies the potential for significant knowledge exchange, which creates strong reciprocity among partners, resulting in remarkable performance and productivity improvements. According to Chesbrough and Brunswicker (2013), there are a variety of strategic objectives why large firms engage in open innovation activities. They found that new partnerships for innovation and technology exploration are the most important objectives and drivers for innovation.

4. Case study

The literature review provided a solid background for creating the model of strategic management in CoP. The comparison of theories with the case company's practice also contributed to the development of the model for effective virtual collaboration in the CoP. Five development areas were identified: 1) the strategy of a firm; 2) motivation to work in CoP according to the strategy; 3) knowledge creation and sharing through CoP; 4) feedback and benefits; and 5) strategy improvements and best practices (business processes) from CoP.

4.1. Strategic Management in CoP

Pre-work before the SDP provided a good phase for the whole research process. It supplied a lot of background information about the current situation in the case company. At the outset, it became clear that growth by acquisitions seems to be the major challenge for this organization's common knowledge and best practices because global acquisitions and corporate culture are not improving hand in hand (GPM). In the case company, there are large differences between cultural and geographical areas; local managers' attitudes vary considerably (GPM), and the affiliate's own culture and best practices seemed to be hard to transform into the new position. The lack of cohesiveness of the corporation's different departments and units led to boundaries and silos within the organisation (GPM). Understanding corporate goals, establishing equal knowledge and running corporate strategy in a new corporate structure were great challenges for the whole personnel (GPM).

The underlying growth of maintenance, modernization and service revenue conceive new service businesses continuously. The challenge for service businesses was to maintain the knowledge of competitors' equipment as well as that of the case organization. Recruiting competitors' personnel seems to be an easy way to acquire

local expertise of competitor's equipment. The problem was delivering new corporate culture to those persons as well as knowing how to socialize their knowledge in the case organization generally (GPM).

Interview results gave a lot of same kind of information as pre-work before the SDP. Also, some differences emerged. The early-stage discussions/interviews with the case company personnel confirmed that after launching the new strategy, the case company was not prepared for fundamental changes across the organization.

- The management was working for the elimination of silos, but regional differences still existed (TT, TE1, TE2 and GPM). Even the top management encourages personnel to improve their personal skills and supports an open learning atmosphere (TT, TE1, TE2 and GPM), but middle management, globally as a stakeholder, was not familiar with the new strategy.

According to the interviews and pre-work, it seems that the biggest challenges are in the middle management, which has not adopted new strategy as well as top management and supervisors. Also, it could be worth considering how to improve middle management skills and deepen understanding of the strategy of the company.

In the beginning of the research, it also became very clear that official strategy did not fully support working in an open environment with the customers, sub-contractors and other network actors around the corporation. This finding was confirmed in the interviews:

- *Unofficial co-operation happens every day (GPM and TE1).*
- *Management understands the opportunities of the open innovation, but there is no strategy to realize advantage from it. Especially, the Research and Development parts of the corporation need that kind of statements for working according to the goals of the firm. Also, Installation and Maintenance business needs clear statements for working in an open-innovation landscape (GPM).*
- *Clear strategy and statements for working within the network are lacking (TT and GPM), and they were generally missing proper knowledge of management strategy.*
- *It seems that clear knowledge of management strategy could help retain this kind of working culture on track, including during negative economic trends (TE1).*
- *Of course, it is easy to support learning and improving personal skills when business is running extremely fine and stakeholders are satisfied with the results that the corporation has achieved (GPM).*
- *Informal networks are useful, but the lack of an official statement and policy of working in the networks hinders the creation of fertile and open networks (TT).*

It was also meaningful to find out that personnel realised that the profitable growth of the case company led to a positive learning atmosphere. Another important finding was that they understood that this situation could change quickly without a strategic statement during a poorer economic situation.

4.2. Motivation to implement the strategy of the firm in CoP

During to the pre-work, it was noted that stakeholders should also notice that a large amount of valid knowledge could disappear if dialogue is missing between headquarters and the subsidiaries (GPM). Management must realise that there is a

wealth of knowledge and professionalism at the local branches worldwide (GPM), and the exchange of it could strengthen the strategy by promoting an effective link between the mindset of the individual and the organisational culture.

During this research, the case company implemented an employee survey to discover how motivated participants, facilitators and leaders were. The results told of an improved level of motivation and an increased level of commitment. Trust in the chosen strategy of the firm as well as implementation of it indicated high satisfaction among the personnel. This kind of result sends a strong message for top management that the company must continue strengthening strong links between individuals and the organisational culture:

- *In the survey, satisfaction and trust in the company strategy and implementation method were noted (TT and TE1).*
- *Among participants, facilitators and leaders, motivation for CoP activities (TE1) was increased, and the results suggested an improved level of motivation and an increased level of commitment (GPM).*
- *For the first time, the company implemented a conversational development program among its supervisors. This program may lead to increased motivation and engagement among the personnel (TT, TE1, TE2 and GPM).*

According to the interviews, it is clear that a new way of implementing strategic goals and the development program was increasing motivation and trust of the participants in the SDP. There was also a clear influence on working in the CoP and engagement with the targets of the case company.

This kind of situation was very positive for the case company, and made it possible to run with the ambition of implementing the strategic goals.

4.3 Knowledge creation

During the pre-work, it was discovered that the company personnel have significant tacit knowledge in internal and external issues concerning the case company's business areas. However, the processes for knowledge transfer and cooperation were insufficient. According to the GPM, the company has inadequate tools, mechanisms and processes to make this knowledge explicit at all levels. In the global business environment, a common language is a challenge for the whole organisation. From top management to the supervisor level, reasonable English skills exist, says the GPM. It seems that top management and frontline workers understand best how the knowledge creation process should work, the GPM continues. Currently, informal networks are working actively, and it appears that they are quite often giving better feedback than a formal organization at the moment. Formally given information sometimes gets lost, but informal networks are able to repair the malfunction of the official information channels (GPM).

In the interviews, three main facts were pointed out:

- *Middle management has not yet realised the benefits of CoP, likely due to the strict and immediate need of middle managers to seek profit in short-term business (TT, TE1, TE2 and GPM).*
- *Another challenge for working at the CoP level is the IT strategy, which is not supportive of open Web 2.0 thinking, such as access to Skype, Second Life, YouTube and other knowledge sharing portals (GPM).*
- *Common language for all is lacking (GPM, TT).*

According to the interviewees, their collaboration capability was limited due to the absence of middle management support and tight working schedules as well as the lack of personal interest. The definition of objectives for middle management could

give first-hand help for knowledge creation process.

New communication methods and platforms were very hard to have in practice. In fact, for example, Web 2.0 platforms were not supported at all. Information security was used as a reason to refuse new collaboration practices. As the technologies and processes of virtual work improve, more work was designed to gain virtual benefits. This could be the way to activate the trend towards virtual teams, and at the same time make it easier work together, interdependently, in the CoP.

A fundamental aspect was that insufficient English skills seem to disturb networking, especially in the lower levels of an organization. The interviewees considered that the Supervisor level and lower levels suffer from the lack of a common language, which makes it difficult to build up networks. Use of computational linguistics could facilitate activities between different language areas. At least, documentation should be translated quickly into all main languages.

4.4. Feedback and benefits

The pre-work stated that the case company should prioritise the support of focused opportunities for employees to increase capabilities that will improve organisational performance and help achieve strategic goals. The company should create repositories that facilitate access to the explicit knowledge of the CoP (GPM) and allow a reasonable way to make visible the lessons learned in the CoP. In general, working in CoP is unusual for the company, but there is an increasing possibility to gain feedback and benefits from them.

The interviews revealed two main messages. First of all, it became clear that the new way of working was not adopted without reserve.

- *The company is not actively seeking advantages from the CoP (TT, TE1, TE2 and GPM).*
- *Changes in fundamental thinking and principles are required to modify the current strategy (TT, TE1, TE2 and GPM).*
- *CoP are not recognised as a vital organ and are therefore not led or managed systematically (TT).*

According to the interview data, it was clear that strategic goals and working daily were not proceeding hand in a hand, and the company personnel was not very familiar with working in the CoP, so they were not able to take advantage from the work done within them. Also, the current strategy did not fully support CoP as a vital organ, and it was not included in the leading processes. A clear knowledge strategy could help the lack of management of the CoP.

Second, the case company was losing many possibilities to create new knowledge if they do not take advantage of the feedback and benefits of CoP:

- *Few persons who are working in CoP are target-oriented (TE1 and GPM).*
- *The company should take advantage of the personnel who are committed to collaboration for solving business problems and increasing their performance capabilities (TT).*
- *The company could increase its common knowledge by seeking feedback and participating in networking processes (TE2).*

Interviews made it clear that personnel do not know their objectives in the work of CoP. Apparently, they did not know their aims and what the company is expecting them to do. All stakeholders should realise the power of knowledge created in the CoP and made certain to benefit from it.

A clear statement of community working, from top management through the whole

organisation, could authorise the personnel to adopt a new way of working. It was crucial that middle management was also able to see that benefit when they align it with their personal goals.

Technical benefits were easier to achieve when tacit knowledge was documented in repositories with easy access to all stakeholders. Making all knowledge explicit that was produced in the networking processes and translating it into all prevailing languages in the case company would create a shared common knowledge.

4.5. Strategy improvements and best practices

The Learning Approach in the SDP was totally new. The SDP was aimed at implementing an equal level of knowledge to run the strategy of the firm in the daily work during customer interfaces. It seems that the successful outcomes in the SDP created a new learning and training culture in the case organization. It still seems to be a quite distant from the structured knowledge creation process, but a well-sponsored strategy for creating knowledge through the CoP was quite near.

Apparently, the case company was not yet recognized the power of CoP. During the study, it was not clearly recognized that statements about CoP in the knowledge management strategy exist. It seems that at that moment, there was a good possibility in the case company for creating a successful strategy for working in the CoP. Clearly, however, it was necessary for someone in the top management to sponsor it.

Empirical research supports that working in the CoP and strategic management were very well handled in the case organization:

- *Restrictions and control have been the way to protect the core business, but strong policies are turning little by little to the understanding of and emerging commitment to the strategy of the firm, which may loosen the control of learning in the networks (GPM).*

The goal was to enact a strategy in which CoP were recognized as a knowledge creation and sharing platform. Based on the interviews, the company was making strides towards improving the knowledge creation processes thanks to the SDP. The company may consider facilitating the formation of CoP as a practical way to frame the task of managing knowledge. Managerial implications can be identified from the literature. One approach was to identify and appreciate the strategic value of CoP and the need for management by executives and managers.

While it was natural that members of a particular CoP adopt different roles, activeness was a key to success. Active members understood and took responsibility of the community whereas passive members do not. Alongside collective responsibility bearing, willingness to commit at an individual level was particularly important in the case of CoP since there was no formal structure to keep things together and running. CoP was based on people and their willingness to work toward a common target. If that willingness fades, the community will no longer exist. In this sense, communities of practice are, in the real sense of the word, intangible capital under management protection. The case company would be able to change to a knowledge-based organization with their customers and other stakeholders, as interviewees stated:

- *We stress the strategic partnership with customers, but other external networks are considered more a mere source of information than a conversational development platform (GPM).*
- *Actually, it is almost mandatory to work in the networks to achieve all the necessary information and support (TT).*
- *Subcontractors and strategic partners are closer than ever to our core business (TE1).*

Supervisors were asked to share success stories and items for improvement, propose new ideas and identify unclear issues. The organisation seemed to have begun the process of knowledge creation. TE2 stated that regional training centres were collaborating and trying to create new common knowledge. Although a structured knowledge creation process still seemed distant, a well-sponsored strategy for creating knowledge through CoP was quite near. The following themes were identified in the interviews:

- *Converting information to knowledge is the most important issue in strategy improvements and best practices for the case company (TT, TE2 and GPM).*
- *Benefits and feedback are relevant for the organisation's practitioners, in their dual roles as community practitioners and operational team members, to help link the capabilities of CoP to the knowledge requirements of team and business units (GPM).*
- *The capability to guide the development of strategic change and the building of an infrastructure is required to generate new capabilities and strategy improvements (GPM).*

Based on the interviews, it can be seen that knowledge creation process is a strategic issue for the company personnel and confirms their understanding of the importance of the strategic goals of the company. Also, they stated the importance of change in strategy to ensure the possibility of taking advantage of the new way of working. Another big finding was that interviewees were concerned about the strategic questions and with understanding the needed improvements.

5. Conclusions

This study examined the CoP in the strategic context through the case study. The current organisational structure, capabilities and challenges of strategic management of the case company with CoP were analysed. In this study, it has been seen that there are large differences between cultural and geographical areas and local managers' knowledge of strategy in the case company. An effective corporate practice in an organisation built through acquisition is challenging to implement because there is a lack of cohesiveness of the corporation's different departments and units, which leads to boundaries and silos within the organisation. The official strategy of the firm did not fully support working in an open environment with the customers, sub-contractors and other network actors around the corporation. It was also noted that management must realise that there is a wealth of knowledge and professionalism at the local branches worldwide because employees work continuously with competitors and within informal networks. CoP are seen as new organisational groups, and as the key to managing knowledge and innovation (Brown and Duguid, 1991, 2000a; Brown and Grey, 1995; Wenger and Snyder, 2000; Kimble and Bourdon, 2008). Especially, CoP are seen as a strategic tool for executive management and supervisors. Mainly, the challenge is in the middle management, which does not have a deeper understanding of the knowledge-driven business. Despite that, supervisors are well motivated to work in CoP. The case company has a big challenge because CoP are not recognised as a vital organ and are therefore not led or managed systematically, and nor are they actively seeking advantages from the CoP. The company should take advantage of the personnel who are committed to collaboration for solving business problems and increasing their performance capabilities. The company should prioritise the support of focused opportunities for employees to increase capabilities that will improve organisational performance and help achieve strategic goals. Converting information into knowledge is the most important issue in strategy improvements and best

practices for the case company because benefits and feedback are relevant for the organisation's practitioners, in their dual roles as community practitioners and operational team members, to help link the capabilities of CoP to the knowledge requirements of team and business units. Another challenge is the outsourced ICT department, whose old-fashioned processes prevent it from using modern knowledge-sharing tools and channels. This disadvantage seems to be one big handicap in using CoP for knowledge creation and sharing through the entire, virtually connected global corporation. Without reasonable tools and platforms, it is difficult to achieve the best feedback and benefits from CoP. The lack of a documentation process to convert tacit knowledge seems to slow down the adoption of strategic change and new business processes. The main suggestion for improving collaboration on an organisational level in the case company is to establish informal networks with modern tools for knowledge sharing and documenting. Also, the relationship between CoP and their stakeholders should be strengthened.

The capability of leading the company has improved at the individual level as freedom to organize work has been given to first-line managers, and which it has aligned simultaneously with the corporate strategy. Extensive use of virtual meeting tools (web-conferencing, audio-conferencing, instant messaging) as well as virtual team sites (in which projects can be managed independently) have increased the capability of collaboration in the case company. Individuals have different skills and competences. A CoP provides skilled individuals with a forum that brings together people with different areas of expertise, allowing them to join forces to achieve a common goal.

Together, the pre-work and interviews indicate that as long as the case company implements an understandable strategy and fosters motivation as well as a common language and proper tools, it has capability to create a new, common knowledge for all stakeholders.

Top management has sponsored strong sponsorship of learning and knowledge creation. Although the core competencies are protected by the corporate policies, the case company is open to networking with their partners.

Partnership with customers is highlighted, and the target is to create in collaboration better services for the customers. The best practices, which have been created with the customer, are distributed to the whole organization and its partners. The outcome for that kind of collaboration is global content and local best practices. Generally, the atmosphere in the case company seems to adopt strategic and managerial sponsorship of working more openly in CoP.

Apparently, the case company has not yet recognized the power of CoP fully. During the study, it was not clearly recognized that there exist statements about CoP in the Knowledge Management Strategy. It seems that at the moment, there is a good possibility for the case company to create a successful strategy for working in the CoP. Clearly, it must be sponsored by someone in the top management. It could be rewarding to make a follow-up study to evaluate the current situation and possible improvements in the case company. Interviewees were running the SDP in practice. During the interviews, they were already able to see the influence of a new kind of training program and received a lot of feedback about it. A good basis for follow-up research could be to enlarge the group of interviewees. It could strengthen the results of the research and give more background for the conclusions.

The current study paves the way for further research into experiments on the practical implementation of CoP. Motivation as it relates to the success of CoP should be investigated further. Additional studies should identify methods to derive benefits and feedback from CoP. Much of the available research was conducted over short periods; prolonged interaction in an organisational context could show different results.

Further research is also needed to investigate competence creation through CoP.

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