

AN ORGANIZED EFFORT TO SHAPE A NASCENT EHEALTH MARKET – ACTIONS AND ARTEFACTS

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Saila Saraniemi¹, Teea Palo², Saara Pekkarinen¹, Pauliina Ulkuniemi¹ and Laura Riuttanen¹

¹Department of Marketing, Oulu Business School, University of Oulu, FIN-90014, Finland
saila.saraniemi@oulu.fi, +358505249532

²Department of Marketing, Lancaster University Management School, Lancaster, LA1 4YX,
UK

Abstract

The functioning of a market has gained increasing research attention recently within the marketing discipline. Accordingly, markets are considered as constructs that are produced as a result of behaviours of multitude of actors. In the present study, we examine markets as socio-technical constructs in which a multitude of actors perform activities within relationships. We look at the healthcare sector and more specifically, the growing eHealth market. The purpose of the study is *to examine how an organized effort of market actors shapes a nascent market through actions and artefacts*. The paper discusses these concepts and elaborates them through an illustrative single case study encompassing a nascent eHealth market at two levels; macro (zooming out) and micro (zooming in) levels mediated by an organized effort of a multidisciplinary research project ‘Digital Health Revolution’. The challenges of organising and coordinating collective actions at these market levels are then discussed suggesting further research avenues.

Key words: market, eHealth, actions, artefacts, organized effort

INTRODUCTION

The functioning of a market has gained increasing research attention within the marketing discipline recently. Accordingly, markets are not considered as an external context in which individual companies either act or choose not to act, but constructs that are produced as a result of behaviours of multitude of actors. In the present study, we examine markets as socio-technical constructs (Araujo 2007) in which actors perform activities in interaction with each other and thus build relationships. Following research on markets as networks, we see that what is included in a particular network is a perception of a certain actor, and a market can also change towards what a certain actor wants (Ulkkuniemi et al. 2015).

The way markets change through the actions taken by individual market actors has been examined to some extent (Onyas & Ryan 2015). Although the functioning of the market requires efforts from various actors, some of them may have a more powerful role in shaping the market than others. Nenonen and Storbacka (2010) demonstrate how an actor, who aims to shape the market through market propositions impacts the market. Markets are what the market actors want them to be. Having this in mind, we pursue to elaborate how the behaviours of different market actors can shape an emerging market. More specifically, we are interested in organised efforts to create and shape a market. Research on market cognition has discussed coordinative actions performed in the market (Araujo & Kjellberg 2015), as well as co-ordination mediators, artefacts, such as market and sales figures, stories etc. (e.g. Anand & Peterson, 2000; Kocak, Hannan & Hsu 2013) that provide a degree of order to markets (see Araujo & Kjellberg 2015). Nevertheless, what these coordinative actions are and how they are perceived and performed by different actors still needs further elaboration. As part of the actions, we identify certain artefacts as sense-making tools in the market (see Weick 2011). The purpose of the present study is *to examine how an organized effort of market actors shapes a nascent market through actions and artefacts*.

As an example of an emerging market we study the growing eHealth market. According to the WHO definition, eHealth refers to the transfer of health resources and health care by electronic means. It encompasses three main areas: 1) the delivery of health information for health professionals and health consumers, through the Internet and telecommunications, 2) using the power of IT and e-commerce to improve public health services, e.g. through the education and training of health workers, and 3) the use of e-commerce and e-business practices in health systems management (WHO 2015). In the EU, potential savings in healthcare costs using eHealth solutions are estimated to be at 99 billion € (McKinsey Global Institute 2011) and in the US healthcare sector, maximizing the value of personal data are estimated to produce potential savings more than 300 billion USD by 2020 (GSMA, socio-economic impact of mHealth 2013). Hence it is clear that healthcare ‘market’ is evolving, with the meaning of ‘healthcare’ changing from reactive to more preventive approach, and with multiple actors entering the field to provide solutions to realize this vision. Since preventive eHealth services promote healthier life-style and self-care, using them can be seen as preventive health behavior (Deng 2013).

Recent technological innovations have enabled individuals to measure their own physical attributes in different ways. There is a constantly growing market of e.g. wearable devices and related mobile applications since people are more willing to use technology to maintain and improve their health (Lupton 2014). Swan (2014) reports how personalized medicine, e.g. mobile phone health apps, personal health records, among a number of other methods and services used for preventive health care, supports the increasing self-management of

health by individuals themselves resulting in the Quantified Self (QS) and the participatory biocitizen. These new health related technological devices and applications are creating new business opportunities for entrepreneurs who, as actors in the market, are constructing the market themselves while the practices of individuals managing their own health are evolving.

Especially related to personal health records, the development of My Data approach, pursuing persons to manage their own data, has emerged in many countries. My Data programs are being developed in the USA, Great Britain – and in Finland (Poikola et al. 2014; Finnish ministry of Transport and Communication 2014.). In Finland, such an approach is currently being promoted extensively through the ‘Digital Health Revolution’ (DHR) program, a national initiative funded by a government based funding agency for innovation.

The empirical part of the paper represents a qualitative case study of such an organized effort to create and shape the eHealth market, the DHR program. Data consists of interviews and observations of workshops and meetings on both local and national levels within an eHealth alliance consisting of entrepreneurs, company representatives, other industry experts and multidisciplinary researchers. In addition, secondary data including My Data reports, program plans and memos are analysed. In the empirical part, we analyse the market first by *zooming out* at the level of the society i.e. national level (ecosystem as voiced in the DHR program), and then *zooming in* through elaborating actions of entrepreneurs on the eHealth market. We continue by combining these as actions and artefacts constructing the nascent market. As a conclusion, we pursue for discussing challenges in shaping of eHealth market.

LITERATURE REVIEW

Zooming out – actions and artefacts in market making

Kozak et al. (2013) distinguish two levels in their theory of the formation of market consensus: micro and macro levels. Micro-level theories examine shared meanings as arising from interactions through a collective effort. Macro-sociological theories, on the other hand, include the view that participants, once faced with co-ordination problems in the exchange, base the developed shared meanings from the structural, institutional, and cultural embeddedness of markets. Through these two levels we discuss the role of actions and artefacts in market making, first by zooming out the market at a macro level.

The current study draws on the dynamic nature of markets foregrounded in the market studies literature (e.g., Araujo et al. 2010, Kjellberg et al. 2015), examining markets in the making rather than existing markets (Kjellberg & Helgesson 2007). Constructing a market requires the mobilization of “*varying bodies of expertise and calculative agencies, including marketing practices*” (Araujo, 2007: 211). Hence markets can be conceptualized as on-going processes (Kjellberg et al. 2015).

The notion of action seems central in understanding the construction of markets. According to Giddens (1984: xvii) “*the nature of human action and the acting itself*” is of critical importance when examining markets. However, “*actors do not behave or decide as atoms outside a social context*”; their “*attempts at purposive action are instead embedded in concrete, ongoing systems of social relations*” (Granovetter 1985: 487). Hence, market actors do not behave simply based on economic rationality, nor they act solely based on individual cognitions, but the meanings of events are socially constructed and negotiated (see Fiss &

Hirsch, 2005). Actors in the market act in interaction with each other, enabling collective action to happen and shape markets.

Araujo and Kjellberg (2015) discuss the link between action and cognition. According to their review, cognitions referring to markets have been approached within industrial marketing e.g. as “theories-in-use” (Johansson & Mattson, 1992) and network pictures (e.g. Ford et al., 2002). They continue that also economic sociologists and neo-institutionalists have studied how actors make sense of the market. For example according to Fligstein (1996, 658), market actors try to establish “conceptions of control”, or structures of perceptions of how a market works, for stabilizing their environment. Media stories are seen as key sense-making tools in this stabilizing (Rosa et al. 1999). Anand and Peterson (2000) use the concept of “market information regimes” such as trade magazines, newspapers and rumors as same meaning.

Market sense-making and sense-making tools (see Araujo & Kjellberg 2015), such as material objects and artefacts are seen to be keys in the construction and shaping of markets. Simakova and Neyland (2008) discuss technology marketing as market-making; marketers need to create compelling stories that draw and hold together constituencies of people and things around a new technology. Relevant actors become incorporated into a constituency of potential users, purchasers, and other advocates of the product in focus. In a similar vein, Kjellberg et al. (2015) discuss market innovation, which requires establishing and stabilizing a bounded network of actors (e.g. buyers and sellers) and other entities (e.g. object of exchange, institutions, and other material objects). Within the eHealth market, Lupton (2014) sees e.g. mobile apps developed based on health and medical needs as sociocultural artefacts that are “*actors in heterogeneous networks of other actors, both human and nonhuman*” referring to “*the symbolic and social nature of health and medical apps*”.

The social nature of artefacts and their role in creating knowledge and meaning has also been acknowledged in the Social Construction of Technology (SCOT) approach. The development of technological artefacts involves multiple actors (social groups) identifying problems and solutions (Pinch & Bijker 1984). Artefacts are important representational devices in science as well, such as graphs, diagrams, models, and reports (Lynch & Woolgar 1988). In market making, artefacts are an important element in mobilizing and coordinating the actions of others.

Clearly, more empirical evidence is needed on how organized efforts make and shape markets, especially in the situation where the market is only nascent. In addition, an important perspective that grounds the My Data approach is avoiding the future scenarios of monopolistic information society (Newman 2013) implying the need to emphasize and understand the collective construction of the market.

Zooming in – individual actors in the market

We now zoom in from the macro level actions to the level of the individual actors (companies and entrepreneurs). Some actors may have more influence than others in the emergence of a market consensus (see Kozak et al. 2013). Apparently, these could be opinion-leaders that represent e.g. communities of practices (Fiol & Romanelli 2012) or lead-users (von Hippel 1986), such as members of Quantified self –movement within eHealth market. According to Kozak et al. (2013), connections and relationships of these opinion

leaders or “vanguards” to the wider audience and to authorities, regulators, or market intermediaries are important determinants of their influence.

The business opportunity literature within entrepreneurship is helpful here to understand the individual actors and their efforts in building collective market level actions. Shane and Venkataraman (2000) state that entrepreneurship is concerned with the sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them. Shaver and Scott (1991) argue that to understand how the markets are presented in the mind of an entrepreneur, one must understand the schema of the entrepreneur. Schemas are mental models that present the beliefs and knowledge of an individual about how social and physical worlds around us work (Gaglio & Katz 2001). Entrepreneurial studies have widely focused on how these mental models of entrepreneurs differ from those of non-entrepreneurs (Gaglio & Katz, 2001) for understanding and categorizing the reasons why an individual starts a business (Carter et al. 2003).

The creation of new businesses starts with an opportunity development process (Ardichvili et al. 2003). Choosing a market domain is one of the most important decisions made in an early stage of an organization (Gruber et al. 2008), since it will affect the identity of an organization, the skills and expertise needed to be competitive in the market as well as the organizational structure of an organization. Another reason for the importance of defining a market is that market boundaries can be a major source of innovation (Geroski 1998.) If a company is able to find a new nascent market, they face an ambiguous and uncertain business environment with no common comprehension of the structure of the market (Benner & Tripsas 2012).

Creation, perception and pursuit of opportunities are influenced by evolution of the related industry. Research has shown that the basic characteristics of an industry shape not only the extent and kind of entrepreneurial opportunities, but also their change during time. As an industry develops, it leads to creation of new business opportunities and new entrepreneurs, who are able to pursue these opportunities. The extent and nature of the opportunities in an industry also depend on the fundamental technologies and economic characteristics of the industry. Dynamic, open-ended market processes constantly create new entrepreneurial opportunities. (Buenstorf 2007.)

Much of the entrepreneurial opportunity discussion has focused on the individual, such as the entrepreneurial alertness to the market (Ardichvili et al. 2003, Eckhardt & Shane 2003) and the knowledge possessed by individuals (Shane 2000). However, Garud and Karnøe (2003) see that in technology entrepreneurship agency is distributed across different market actors to engage and mobilize resources. Hence, the artefacts discussed earlier, act as mediating tools or boundary objects (see e.g. Doganova & Eyquem-Renault 2009) between the individual actor and the market levels, in sharing and circulating knowledge, mobilizing and coordinating collective action.

METHODOLOGICAL APPROACH

Our research approach is abductive meaning that we combine existing literature and knowledge with rich empirical data collected from multiple sources, aiming at theory building (Dubois & Gadde 2002). In data analysis thematic coding helps us for building theoretical pre-understanding of the market levels (see Ulkuniemi et al. 2015) within our

illustrative single case. Clearly the studied phenomenon is complicated and multi-level in nature, suggesting single case study as a meaningful approach (see Stake, 1995).

We have used both secondary and primary data for illustration of our case (Table 1). Most importantly, for understanding the *macro level actions (society/national)* in the eHealth market, we have first and foremost acted as active actors as researchers within the national Digital Health Revolution (DHR) program. The program started in August 2014 and its first phase lasts until the end of 2015. The program is a research consortium that has representatives from seven different universities and research centers. Thus, we have learned our case through numerous documents related to eHealth market in Finland and abroad, seminars within the program, e-mails related to it and following relevant Internet pages such as Facebook pages concerning DHR or My Data more generally.

Table 1. Data and related actors in the eHealth market.

Data	Actors
8 interviews: 8 CEOs from 8 companies, Feb-March 2015, 472 min	• Entrepreneurs interested in eHealth business (local)
My Data clinic sessions for chosen companies in Spring 2015	• Entrepreneurs interested in eHealth business (national) • Business community (national) • Digital Health Revolution program (researchers)
4 eHealth Forums autumn 2014 – spring 2015	• Entrepreneurs interested in eHealth business (local) • Digital Health Revolution program (researchers) • End customers
My data – A Nordic Model for human-centered personal data management and processing 2014 (In Finnish) (and English summary 2015)	• Open Knowledge Finland Association • Finnish Ministry of Transport and Communication
DHR program's Sprint Review meetings autumn 2014-spring 2015	• Digital Health Revolution program • Research consortium
DHR program's internal plans	• Researchers
DHR program's internal e-mails during the program	• Researchers
DHR program's work package meetings 2014-2015	• Researchers
Blogs, newspaper articles	• Researchers • Finnish government • Entrepreneurs • Business community
DHR's Webpages and Facebook pages	• Researchers
Comments from Tekes e.g. for program plans, steering group meetings	• Finnish Funding Agency for Innovation (Tekes) • Advisory board of the program
Finnish Government's strategic program 2015	• Finnish government

Our primary data were elicited through our interactions with representatives from companies and research organisations as part of the national DHR program. These interactions consist of various company sessions related to My Data approach within the program (named as eHealth Forums and My Data Clinics). Interaction during these interactive eHealth forums between the entrepreneurs and researchers involved detailed discussions related to e.g. My Data approach in general, as well as more detailed service ideation and business opportunity discussions related to eHealth market. The participating entrepreneurs were interested in eHealth business in general, not necessarily in My Data as such. My Data clinics, on the other hand, were arranged with purposefully chosen entrepreneurs discovering and/or creating business opportunities using My Data within eHealth market. To gain even deeper insight to

the micro level of the market (firm/entrepreneur), we then interviewed CEOs of 8 firms (see Table 2 below).

Table 2 . Interviewed entrepreneurs.

Product/service	Referred as	Interviewee's position	Date of interview	Length min
Speech controlled mobile assistive technology	Mobile company	CEO	Feb 25th, 2015	63
Clinical imaging management tool	Imaging company	CEO	March 2nd, 2015	64
Activity modeling and analyzing method	Modeling company	CEO	March 3rd, 2015	77
Encouraging tool for monitoring motivation	Motivation company	CEO	March 4th, 2015	59
Energy testing for large customer groups	Testing company	CEO	March 6th, 2015	52
Enterprise resource planning solution for gyms and sports centers	RPS company	CEO	March 9th, 2015	57
Smart insoles for injury recovering	Insoles company	CEO	March 10th, 2015	46
Online booking system for doctor's appointments	Booking company	CEO	March 11th, 2015	54

ANALYSIS: THE INITIATIVE TOWARDS AN EHEALTH MARKET

Our empirical data consist of observing the DHR programme as an organized effort to shape the nascent eHealth market in Finland. We approach this case through two levels of analysis: 1) the macro level of the society, i.e. national level (zooming out), and 2) the micro level of local entrepreneurs as individual market actors. The DHR program is seen as a ‘mediator’ between these two levels as an organized effort to shape the market through actions and artefacts. Analysis is an illustrative description of the case highlighting the actions and artefacts in market shaping as well as the related challenges.

Zooming out: National level actions and circulated artefacts in the nascent eHealth market

Constantly increasing health care costs have led countries and health care providers to the point where the system must be reinvented. At the same time, increasing amount of new ways to monitor health and wellbeing have made it possible for society to start moving health care towards more personalized, preventive and participatory emphasis. To reach this goal and let individuals to take more responsibility of their own health, it is important to liberate the data that organizations have in their possession about the individuals. (Tekes 2014.)

The need for this fundamental change has been recognized in Finland where governmental funding agency *Tekes* (The Finnish Funding Agency for Innovation) decided to fund the multidisciplinary consortium of *Digital Health Revolution initiative* (DHR) as a strategic

research opening (2014-2016). The DHR program has three thematic areas: 1) Liberating and refinement of personal data, 2) Making value of circulating personal data and 3) Increasing the end-user perspective in connected health service design (Digital Health Revolution 2015).

As a solution to the liberation of data, the development of My Data network has been widely suggested. My Data refers to a systemic change to human centred way of organizing personal data held by different organizations and service providers. It is not only Finland where the development of My Data approach has already started: My Data programs are being developed in the USA and Great Britain as well (Poikola et al. 2014: Finnish ministry of Transport and Communication 2014.) From Great Britain's effort "Midata", Finnish actors have learned more actively to engage private companies and service providers into the network (TEK, 2015).

Recently in 2014, *Finnish ministry of Transport and Communication* ordered a *My Data report* to explore My Data possibilities nationally and internationally. According to this report by *Open Knowledge Finland association* (Poikola et al. 2014), the advantage in Finland is that its high education level combined with highly developed information technology infrastructure provides a fertile ground in a small country to develop new nationwide innovative solutions. Development of My Data approach requires openness, co-operation and trust between organisations and individuals, all attributes found traditionally in Finnish society (Poikola et al. 2014) – and needed for any network. According to Open Knowledge Finland whose representatives are active researchers also in DHR program, there are already several actors acting around My Data initiatives in Finland, of which a few are also health and wellbeing related.

The speaker of the parliament of Finland, Eero Heinäluoma, in his opening speech for the parliament in 2014 called for enhancing individual rights and data privacy as a new field for export for Finland (Poikola et al. 2014). Similar kinds of actions supporting the My Data approach nationally have been taken by *The Finnish Innovation Fund Sitra*, who has initiated strategic government programme goals concerning the citizen's rights to own, utilize and control data of herself/himself, and promoted these goals for the new governments' program (Sitra 2015). As a result, the new Finnish government outlines in its program (2015) that citizen's rights to control and decide of utilization of data of herself/himself is reinforced, ensuring at the same time fluent data transfer between authorities.

Zooming in: Entrepreneurial actions in the nascent eHealth market

The current market

All the interviewed entrepreneurs had participated in the arranged eHealth forums of DHR at some point, and are all in wellbeing or healthcare business. All their businesses are based on software, supported with a physical product. Most of the entrepreneurs feel they are mostly selling software for their customers and categorize themselves as software houses. Many of the companies are tailoring their software based on the customers' expectations and needs, and only two of the companies have a product which cannot be tailored at all. Even though most of the companies have one core product, they still offer e.g. consulting and software development to get revenues. Some of the companies also have physical products, which support their software, but these products are not manufactured or even designed by the companies themselves but by their suppliers and partners.

However, the companies do not necessarily see themselves working in the eHealth market. The companies saw themselves working on healthcare, wellness or programming business but not in a larger context of eHealth. However, they see that market is developing, and it is alluring in the economically turbulent time.

“Health care market is one of the few markets which are growing at the moment. But of course there are lots of negative aspects on it too, it is really hard to penetrate in it and it is old-fashioned and so forth. But the market itself is a good option in this economic state” (Imaging company).

Even though the entrepreneurs see the market developing in the future, they are concerned that the business might be just a short boom and at some point people might not be as passionate about their health and wellbeing to the same extent anymore. Therefore the entrepreneurs feel they have to act fast to get their share in the market.

A key issue in health care business in general is the role of law and regulations. There clearly was an understanding among the entrepreneurs concerning what kinds of laws affect their business, being mostly optimistic about the Finnish law system. On the other hand, some of the entrepreneurs struggle understanding the norms of the market; whether any unwritten norms on the market exist. Honesty and openness towards customers as well as the importance of keeping promises was also emphasized.

Local business environment: relationships and networks

All the interviewed entrepreneurs conduct their businesses in the same city. Many of interviewees find the environment for entrepreneurship in the region to be supportive, and feel that the environment has improved during recent years and the atmosphere towards entrepreneurship in whole Finland has become more encouraging. Yet the local situation might be different from other cities in Finland since during the recent years many companies have closed their sites and left plenty of talented work force behind. This has forced the city to act and support entrepreneurship to create jobs. These actions include for example establishing business incubators and arranging funding for start-ups, enabling local entrepreneurs to build relationships and networks among other entrepreneurs, funding agencies, and other actors.

All the entrepreneurs have built relationships with other actors in the market. Most of the entrepreneurs are very close to the most important partners and some of them even have relationships with their competitors. In general, all entrepreneurs have built relations with actors who can somehow support their business; suppliers, retailers, advertisers, and software development partners. The most important relationships the entrepreneurs have seem to be with actors who are directly relevant to their business.

“In a way, all customers are partners. We treat them as they were our partners, long-term customer relations. And at the moment we are investing a lot in the retailing. ---We need companies like these, who have lots of customers and business relations and who are strong in retailing.” (Testing company).

Both direct sales and retailers are used by the companies as a way to distribute their innovations. Clearly, some of them do not see any other way to distribute their innovations

while others see possible change in their distribution strategies in the future, as they aim to standardize their systems and decrease the labour required.

The companies aiming to expand their business abroad understand that they need retailers or salespeople in the target countries. Even though some of the innovations could easily be distributed online, the entrepreneurs feel it is important for their customers to be able to test their offering before purchasing, which requires physical sales force in the target countries.

Towards future markets: struggling with resources

Lack of resources seems to be a challenge at the moment inhibiting efficient future operations and growth in the market. Most entrepreneurs would want to have more funding and skilled people in their company. Many of the companies are clearly struggling with investing in workforce to increase their market share.

Most important resources for the entrepreneurs are their workforce, knowledge and abilities. They also feel the need for more resources in marketing and sales. Most of the companies do not systematically use the resources of their partners and some do not use them at all.

“I do not have enough time, even though I would love to travel around... It is nice to talk about our own product with people, but you cannot spend time there, since you still need to see some kind of road to a business... Our resources are still so scarce.” (The mobile company).

Digital Health Revolution program as mediator: Organised effort towards My Data-based eHealth market

Initiative to shape the eHealth market

The purpose of My Data based preventive eHealth services is to empower citizens of Finland to actively take part in self-management and prevention of diseases. Digital Health Revolution Initiative aims to 1) contribute to the change in the control of data in favour of the individual, 2) explore health-related data from genomics to digital footprint, 3) develop successful personal data movement across systems and services, 4) create My Data ecosystem, and 5) promote the My Data based health business (Digital Health Revolution 2015).

The DHR is organized around three research themes that are overlapping in *seven work-packages* that complement each other and co-operate around main themes. The research consortium is multidisciplinary and nation-wide, of whom *program leader* is the Centre of Health and Technology at the University of Oulu. At the beginning, organization of the leadership was planned to be at four levels: research task-level, work-package level, theme level and program level. Especially for work-packages having different theoretical backgrounds (engineering, natural sciences, and business, among others) and working methods internally and in relation to consortium leader, finding suitable ways of communication has been challenging. Moving towards theme level leadership has been an answer for tightening the co-operation in the program. At the same time, the program leader has refined and revised the themes according to the constant discussion with *business community* and *advisory board of the program*. The program disseminates its results

internally at “sprint” –events that aim at increasing co-operation and cohesion between the research themes and research groups (work-packages).

Creating My Data ecosystem

The DHR program aims at increasing the understanding of the My Data usage via ecosystem creation. This means proactive *communication* around My Data approach and *recruiting companies and global opinion leaders* to participate to ecosystem widening operations. Another theme related to this is increasing the understanding of systemic digital service ecosystem change. The program *promotes actively new business initiatives* and *interacts with other national funding programs* in order to implement national strategies in healthcare sector. Companies will be developing business around or even doing *business based on the My Data.fi platform* (DHR internal plan 2015).

Recruiting companies for My Data ecosystem has been done at both national and local levels. *At national level*, ongoing scanning of potential companies starting and doing My Data – related business has been done, in addition to arranging “My Data clinics” for one or more focal companies to co-create and discuss potential preferably network-based service concepts with researchers of the consortium. At the first phase, ecosystem will cover active partners that are *influencers* in My Data exchange and agreements on data exchange will be done (DHR internal plan). It only seems that in Finland, among influencers, exists a “first-mover problem” (TEK, 2015).

Furthermore, researchers have done value co-creation analyses in service pilots including regulatory, standardization, ethical and business aspects of business models. All these are aiming at the initiation on national business initiatives i.e. commercial service pilots. For fostering international perspective, researchers have also defined and benchmarked relevant international digital footprint data sharing networks.

At local level, four interactive eHealth forums with local companies interested and/or performing in eHealth business have been arranged by business incubators and business researchers in Oulu. The goal of these forums has been the development of real-life preventive health service concepts with companies and end-users. In the first workshop, a multidisciplinary group of researchers mapped stakeholders and value networks around the lifetimes of four different personas. The question presented was ‘how My Data-based services may help these personas’ daily lives?’

The second workshop with local companies aimed at service ideation for these four personas. In the third workshop, one persona, 13-year old boy representing a group of “young actives” was chosen for further development. All workshops were arranged in co-operation with service designers for visualization of service concepts. For example, demos of applications and wearables, as well as video diaries of boys were used to foster service concept creation. Finally, a group of young athletes evaluated the three service concepts developed (or demos of them) in their real-life use situation during their training.

DISCUSSION

The purpose of the present study is *to examine how an organized effort of market actors shapes a nascent market through actions and artefacts*. Our initial analysis reveals that in endeavours aiming towards the development of new markets around large technology

innovations, such as in the eHealth market, there is a need for thorough understanding of the various aspects and levels of a market. In this study, we are especially interested in an *organised effort in the form of a government funded initiative* in shaping a market. Several actors, their actions and related artefacts were identified related to the phenomenon.

The role of the organized effort, a collective initiative to develop My Data network and related service concepts for the future preventive healthcare is essential in bringing different actors together at different levels. At the macro, national level it is an important tool to develop ‘coordinated actions’ (see Araujo & Kjellberg 2015) among research organizations across disciplines, government agencies, and companies towards creating a network or an ecosystem, promoting My Data related goals, and even influencing the government program. At the individual actor level (entrepreneurs), it became clear that the entrepreneurs hold different perceptions of the market while not even perceiving to operate within the eHealth market (but a software market). Yet the DHR program has engaged the entrepreneurs into the eHealth forums and workshops, engaging the entrepreneurs into coordinated actions, creating connections and building relationships among them, and hence, shaping the nascent eHealth market by bringing individual actors together.

However, shaping a nascent market holds several challenges for all the actors. Market is not “out there” but there are different perceptions of it as the market is socially constructed (Storbacka & Nenonen, 2011). Developing ‘constituencies of people and things’ (Simakova & Neyland 2008) is key to the creation and shaping of a nascent market. The eHealth forums combined these; people (entrepreneurs, researchers, other actors) came together to innovate and brainstorm the user personas, their lifecycles, and potential service concepts, with the help of material tools and resulting in new artefacts (e.g. memos, service designs, videos) that were circulated among the DHR program participants at the national level. Here we can see the interaction between the different levels, the role of artefacts in this interaction, and the coordinated action preceding and resulting from this.

This study is still in progress, while the organized effort under focus, the DHR program is still in its early phases. No doubt further research with more in-depth analysis is needed to better understand specific artefacts and actions shaping the nascent market. This rather preliminary analysis of the case has, however, illustrated important insights of an interesting phenomenon and opened up several future avenues for research. These could entail more detailed analysis of e.g. supportive actions in market sense-making, categorizing challenges faced in different levels further, as well as analysis of connections between market levels: macro and micro levels.

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