info

Article information:

Users who downloaded this article also downloaded:

For Authors

About Emerald www.emeraldinsight.com

Developing a regional design support service

Juho Salminen, Satu Rinkinen and Rakhshanda Khan

Juho Salminen,
Satu Rinkinen and
Rakhshanda Khan are all
based at the Department
of Industrial Engineering
and Management,
Lappeenranta University
of Technology, Lahti,
Finland.

Abstract

Purpose – *This paper aims to examine how to support use of design in small- and medium-sized enterprises (SMEs) by developing a new design support service. Design is emerging as one of the major themes of modern business development. However, most organisations – especially SMEs – view incorporating design as problematic.*

Design/methodology/approach – *This paper presents the service development process as a case study and contributes to the discussions on service development projects realised in the Living Lab context and enhancing the use of design among SMEs. The project had two basic assumptions as a starting point: using design is beneficial for SMEs' business and business advisors are the best channel for reaching these SMEs. The basics of service design process and several tools such as the service design blueprint, the business model canvas and problem interviews were utilised to develop a service concept and to test it among target SMEs.*

Findings – *It is difficult to find SMEs that need design and are not yet served by the current regional or national service offerings. The findings demonstrate the importance of user involvement in the beginning of service design process.*

Research limitations/implications – *Limited sample size may impact the generalisability of the results. Increasing the sample size of companies might provide new insights not yet discovered in this study.*

Originality/value – *Policymakers can benefit from the insights on design support service development when designing new services for SMEs. Co-design processes that are elemental to the Living Lab approach could also benefit the development of public business-to-business (B2B) services.*

Keywords *SME, Service design, Living Lab*

Paper type *Case study*

1. Introduction

Design is at the moment emerging as one of the main themes of current business development. Design can be regarded as a key strategic and competitive resource, and focussing more on design can, for example, allow the enterprise to diversify into new and more profitable markets (Bruce and Bessant, 2002). Design is seen as a strategic asset by many top performing companies, and it has regularly been highlighted as a factor explaining differences in performance in different economic growth studies (Bruce and Bessant, 2002). Research indicates that firms that employ design effectively find that it contributes to their business success (Bruce *et al.*, 1999). However, most organisations – especially small- and medium-sized enterprises (SMEs) – view incorporating design as problematic. There is a need to enhance design awareness among small firms. It is even argued that SMEs that do not use design are limiting their innovation capabilities and competitiveness (Acklin and Hugentobler, 2007). Therefore, it is important to support SMEs to sustain innovation through design. How to support them remains still a question. In recent years, especially in Europe, Living Labs have tried to offer a partial solution.

This paper examines how to support use of design in SMEs by developing a new design support service. The case study had two basic assumptions as starting points:

1. using design is beneficial for SMEs' business; and

2. business advisors are the best channel for reaching these SMEs.

Many countries have launched projects to address this issue and have devised solutions to support SMEs in this context. One such initiative is the REDI (when Regions support Entrepreneurs and Designers to Innovate) project, which proposes that three pillars are required to create a regional "design-innovation" ecosystem: SMEs, design service providers, and business advisors. The project focusses on the potential of the business advisors to bridge the gap between SMEs and design service providers. The project aims to support SMEs to unleash their design innovation potential by bridging the gap between the demand side (businesses) and the supply side (design professionals).

The main contribution of this study is providing insights into the discussions on service development projects realised in the Living Lab environment aimed at enhancing the use of design services among SMEs. The case study and its findings presented in this paper highlight the need to focus on users of the service in the early phase of the service design process instead of utilising user knowledge only in the testing phase. Co-creation and co-design processes with users in addition to relying on the assumed experts in the field provide wider possibilities and more fruitful base for service development.

2. Living Labs and service design

Living Labs have become a popular concept related to open innovation and engaging users in product and service development. However, the concept is still rather vague and its theory is quite diffuse. Based on over 30 projects within two Living Labs, Bergvall-Kåreborn et al. (2009) offer the following definition for Living Labs:

> Living Lab is a user-centric innovation milieu built on every-day practice and research, with an approach that facilitates user influence in open and distributed innovation processes engaging all relevant partners in real-life contexts, aiming to create sustainable values.

Philosophy of Living Labs is closely related to that of open innovation, which emphasises the need to make use of organisation's external as well as internal resources in innovation processes (Chesbrough, 2003). Living Labs are considered to be one type of open innovation network (Leminen et al., 2012), as they conduct innovation projects in real-life contexts and act as facilitators between various stakeholder, collecting users' insights and tacit and domain-based knowledge (Amirall et al., 2012). The Living Lab approach has been positioned between user-centred design and participatory design (Dell'Era and Landoni, 2014). In more detailed level the Living Labs methodologies can be divided in four categories (Amirall et al., 2012). In user-centred Living Labs, the users are mostly passive subjects of the study and the Living Lab is focussed on usability testing. In design-driven Living Labs, the designers take the lead and focus is on finding novel solutions. Participatory Living Labs consider on the equal ground in a co-creative process. Finally, in user-driven Living Labs, user is in charge of the innovation process similar to open source development. Living Labs connect companies, users, public sector, universities and institutions (Leminen et al., 2012). They bridge the gap between research and innovation, and as a regional innovation support structure, they can also facilitate business networking (Konsti-Laakso et al., 2012). As such, they offer an ideal context for designing regional services to support innovation activities of local businesses. Extant literature describes existing Living Labs and how they function. Living Labs have been used to develop social innovations (Edwards-Schuster et al. 2012), elderly care solutions (Wu et al., 2014) and test mobile television concepts (Schuurman et al., 2011). Innovation processes involving a Living Lab have been compared to those not involving one (Hyysalo and Hakkarainen, 2014). To our knowledge, previous research has not described how the services the Living

Labs provide to companies have been developed, as the focus has mostly been on already running services. This study sheds light on the issues a Living Lab aiming to create new services to support the innovation activities of SMEs might expect to encounter and how those challenges could be conquered.

Service design is an activity that aims at creating services that are useful, and desirable for the user, and efficient and effective for the provider (Mager and Sung, 2011). It involves the design of the overall experience of a service, as well as the design of the process and strategy to provide that service (Moritz, 2005). Service design has become more popular as a research field partially due to rapid growth and heavy competition in the service business in the western world (Nisula, 2012). It makes possible many different benefits regarding the user experience and is applicable to various industries. Service design is important because well-designed services tend to support the creation of new socio-economic value in societies (Schindlholzer, 2008). Furthermore, it is becoming an increasingly participative process between service providers, customers, consumers, subcontractors, planners and other stakeholders cooperating from start to finish (Kuosa and Westerlund, 2012). Although all cases are different, design projects usually follow similar patterns. Ulrich (2005) describes a four-step design process. First, a gap in the user experience is perceived. Second, the problem is defined, which is the explanation of why the user experiences a gap. Third, the alternatives are explored. Finally, a plan to realise the design is selected. According to Morelli (2006), service design methods have three main purposes:

1. identification of the actors involved in the definition of the service, using appropriate analytical tools;

2. definition of possible service scenarios, verifying use cases, sequences of actions and actors' role, to define the requirements for the service and its logical and organisational structure; and

3. representation of the service, using techniques that illustrate all the components of the service, including physical elements, interactions, logical links and temporal sequences.

Service design requires an understanding of the customer outcome and customer process, the way the customer experience unfolds over time through interactions at different touch-points. The organisation that delivers a well-designed service can provide itself with a key point of differentiation from competitors. A smoothly delivered service with a positive outcome is more likely to result in favourable service quality, which positively influences customer loyalty (Bitner et al., 2007).

3. Methodology

This research uses case study approach for studying the process of creating a new design service. Case study is an empirical inquiry that investigates a phenomenon within its real-life context (Yin, 2009). The case study approach is often found useful in social science research when studying contemporary or particularly complex phenomena. Case study research typically combines multiple sources of evidence and data collection methods (Eisenhardt, 1989; Yin, 2009). The approach "allows investigators to retain the holistic and meaningful characteristics of real life events" (Yin, 2009, p. 4). While some criticise the case study method for being limited by investigators' preconceptions, Eisenhardt (1989) argues that just the opposite is true: reconciling evidence across different types of data and juxtaposing different realities enhance thinking and generate theory with less researcher bias.

The analysis of the collected data was conducted by a group of researchers, which enabled researcher triangulation, as well as data and methodological triangulation. The studied service design process itself included several methods, such as interviews and workshops, which are presented in more detail below. Most of the data used in the research

were naturally occurring data, i.e. data generated for the purposes of the development work and then used secondarily as research material.

4. Case description

The REDI project started with the aim of sustaining territorial innovation "ecosystems" that stimulate innovation through design. Typically, for current development projects, this project has been funded through the European Design Innovation Initiative and developed by a consortium of five European organisations: Agence pour la Promotion de la Création Industrielle, France; Business Support Centre for SMEs (Business Support Centre-SME), Bulgaria; Chambre Régionale de Commerce et d'Industrie, ARIST, France; Design Zentrum NordRhein Westfalen, Germany; and Lappeenranta University of Technology, Finland.

The focus of the project was to encourage regional development. The primary target group on was business advisors, as they have contacts to and insights on SMEs and the potential to raise awareness and advise them. The main issue has been to bridge the gap between the demand side (businesses) and the supply side (design professionals) to unleash the design-innovation potential. Service design approach was used in an attempt to improve the provision of design-innovation support strategies. The emphasis was on encouraging the use of design and promoting it as an ordinary tool with potential to contribute to the success of business. The service design process was conducted within Lahti Living Lab, which is located in the Päijät-Häme region of southern Finland. The service development process followed a typical service design process: sensing a gap, defining the problem, exploring alternatives and selecting a plan (Ulrich, 2005). In this case, sensing a gap meant finding the needs that the service could fulfil. After identifying the needs, the concept was developed and tested by assessing the interest of potential users towards the service.

4.1 Tools used in service development

Several tools were used to support the development process, particularly service design blueprint, business model canvas and problem meetings. Service design blueprint is a tool for describing, visualising and designing service concepts. It is based on a process modelling approach, in which visual notation is used to depict business processes. Service design blueprint is useful for representing high-level overviews of conceptual processes in a relatively simple format that is easy for all relevant stakeholders to understand. Different templates for service design blueprints exist, but the basic principles remain the same: the service concept is simultaneously represented from various viewpoints, such as the user experience during different phases of the service, touch-points, the actual service process and supporting backstage processes. The research group used a version from Service Design Toolkit (2014). The blueprint has space to describe the user experience, touch-points with the service and the service itself. The strengths of blueprinting are its versatility and flexibility, which allow it to be used in different contexts with little modification. (For detailed instructions on service design blueprinting, see Bitner *et al.*, 2007).

A business model describes the rationale of how an organisation creates, delivers and captures value, and the business model canvas is a tool for describing, analysing and designing those models (Osterwalder and Pigneur, 2009). The business model canvas consists of nine building blocks that cover the most important elements of how a business is supposed to function, deliver value to customers and make money for the owners. The tool has gained popularity around the world in recent years, especially among start-up businesses. The canvas supports the development of new businesses by making many of the usually hidden assumptions explicit. Initially, the building blocks of a business model are only hypotheses or guesses as to how things work, and during the development each hypothesis is tested and verified. When an assumption turns out to be false, the business model is changed accordingly. This iterative process continues until a viable business model is found or the developers run out of resources or motivation. (Blank and Dorf, 2012).

Problem meetings are meetings with customers or potential customers to elicit information (Blank and Dorf, 2012). They are a useful way to test whether assumptions regarding the needs and problems of the customers are correct. A good way to begin the discussion is to summarise hypotheses about the customer's problems, and some potential solutions, as well as ask questions such as what are the biggest challenges in your work and If you could solve three problems in the year ahead, what would they be and why? The main goal is to get the customers to talk instead of convince them to buy a product or service.

4.2 Needs finding

The needs finding phase began with selecting regional and national stakeholders and interviewing them. The interviewees represented different parts of the Lahti Design Ecosystem (see Lahti Design Strategy, 2013). The interviewees included two people from national organisations, six people from regional organisations, two national-level policymakers, two SMEs and three designers (Table I).

The interviews were semi-structured and were intended to ascertain what design-related services are already offered to SMEs and what might still be missing. The interviews began with a short presentation of the project and continued with discussions on selected topics: design and innovation, basic assumption of the project plan, role of intermediaries in the field of design and design-related needs of Finnish SMEs. When analysing the interviews, the research group looked for specific design-related problems experienced by SMEs, and generated a list of needs. The needs most relevant for new service development were selected as a basis for further development.

The most important needs the future design service should address were identified as follows:

- According to the interviewees, after the SMEs have successfully used a design, they tend to be willing to continue using it in the future. Therefore, offer SMEs a good first experience of using design, and perhaps offer training related to understanding the possibilities and usefulness of using the design.

- The cost of design was an important issue. As a design project is a gradual process, make the first results fast and inexpensive to prove to SMEs that the design process is useful. Make the design service reasonably priced to reduce the perceived financial risk (e.g. unsatisfying results, extended timetables) of design for SMEs.

- From the business advisors' perspective, there is a need to offer a "canned response" to SMEs who are in the commercialisation phase in their product/service development process; SMEs do not typically turn to business advisors to ask about design, so business advisors need to understand in what phases design might be useful for the SMEs.

4.3 Concept development

The workshop elicited valuable insights from the stakeholders concerning the current service scenario, the use of design and other design-related issues in the region. The purpose of the workshop was to gain sufficient understanding of the situation regarding the design in the Lahti region and to learn about the current service scenario – for example, what the user (SME) needed that was still missing from the service concept. While the

Table I	List of interviewed stakeholders during the needs finding	
Role	Organisation type	No. of persons
Expert	National intermediary organisation	2
Business advisor	Regional intermediary organisation	6
Policy maker	Ministry of Employment and the Economy	2
Entrepreneur	SME (experienced in using design)	2
Designer	Design firm	3

discussions progressed, the missing parts of the service design blueprint were filled in. Based on the feedback of the stakeholders, a mobile canvas was developed. It was a mobile version of the service design blueprint, which later proved effective when explaining the service to the interviewees. The service was simplified to the "minimum viable service", and it was easier to describe it with the business model canvas.

4.4 Design option

The developed new service concept is called Design Option. The service is targeted at SMEs that do not yet use design. The goal of the service is to encourage the use of design by offering a good first experience and reducing the perceived risks to the SME. In this concept, the SME buys the right to see the results of a design project before committing to paying the designer's fees: the price of this option is approximately 10 per cent of the total fee. If the design project is a success, the SME then pays the designer's normal fees; otherwise, the service provider covers the designer's fees, thus reducing the financial risks of the project to the SME. The new service comprises the following phases:

- SME formulates a design brief and, if necessary, gets support and feedback as a part of regional design support (already available in the region).

- If needed, the SME gets help in selecting a suitable designer to do the project (already available in the region).

- SME buys the Design Option (new service).

- SME and designer do the project as usual.

- If the project is a success, the SME pays the designer's fees; otherwise, the service provider covers the designer's costs.

The Design Option is complementary to design support services already offered in the region. For instance, the local business advisors offer support to SMEs in formulating design briefs and selecting designers. The new service was supposed to be a complimentary service to these existing offerings.

4.5 Problem interviews with SMEs

The critical hypotheses for the service were defined using the business model canvas. The idea of the testing was to verify whether each hypothesis in the canvas was true or false. Problem interviews served as the main tool for testing the value proposition, customer channel and customer segment hypotheses (Blank and Dorf, 2012). Three different customer channels – local business advisors from two different organisations, industry organisation and *ad hoc* contacts – were tested by interviewing potential end-user SMEs that do not already use design. Summary of interviewed companies is presented in Table II. The interviewed SMEs were chosen on the basis that did not appear to be already using design or offering design services.

The interviews sought to determine the main problems for the company in general, whether they have used design – and if not, why not – and their main issues related to using design. At the end of the interview, the idea of the Design Option was also presented to the interviewees. The problem interview approach worked well: it generated lively discussions

Table II	List of companies interviewed during the concept testing	
Channel	*Industry*	*No. of companies*
Local business advisors	Technology start-up	4
	B2B machinery and appliances	2
Industry organisation	B2B machinery and appliances	2
	Subcontract manufacturing	2
Ad hoc contacts	Consulting start-up	1
	Subcontract manufacturing	1
	Environmental products	1

and helped to understand the SME's perspective on using design services. The critical hypotheses for the most important business model building blocks, their tests and test results are presented in Table III.

5. Findings

Key partners identified in the canvas agreed to collaborate. Formulating an agreement template involved in the design process turned out challenging, but according to a consulted lawyer, it would be possible to formulate a template that satisfied all partners. Therefore, the first two critical hypotheses were proved to be true. However, the problem interviews with companies brought out some challenges with the concept. Generally, companies did not regard design as an important success factor. Either design was taken care of by customers or other entities outside the company, or the companies had the required skills available internally. Many of the companies were subcontractors, and their customers provided the design in the form of manufacturing blueprints. In some cases, the company's industry was not favourable for the use of design; alternatively, the industry was highly regulated and the existing standards defined the design of products, or the customers were only interested in direct costs of the products. The latter appeared to be especially common when the buyer was public sector organisation. In business-to-business (B2B) context, the functionality of the products defined the design, and the SMEs had extensive experience in product development and manufacturing in the particular fields. Design services (mainly graphic design) were used outside the core business, for example, for websites, posters, business cards and brochures. A critical assumption on which the new service is based was also questioned. One of the interviewed SMEs described the experiences on a design project, where creating conceptual sketches had been fun and easy, but turning the concept into a manufacturable product turned out to be difficult and expensive; in this case, the reluctance to use design did not stem from the perception of the design services, but rather from the expectation of challenges encountered after the design phase was concluded. Therefore, the new service might try to offer support in a phase of the innovation process for which the SMEs do not need as much support as for other phases. The problems that the Design Option was intended to answer were the cost of design and perceived financial risk, which did not seem to be issues for the interviewees. The issue of incorrect value proposition was also evident when describing the Design Option service to the SMEs. Almost every SME liked the concept of the Design Option but felt that it would not be useful to them. They did the needed design themselves, had no products of their own, produced only one-off products or were subcontractors who merely manufactured the products that their customers designed. So while they thought the Design Option was a good idea, they appeared to have no need for it.

Table III

Business model building block	Hypothesis	Test	Result
Key partners	Local design advisors provide consultation on design briefs	Do local design advisors agree to help?	True
Key resources	Agreement template	Can we create a feasible agreement template?	Probably true
Value proposition	Problem: buying design without knowing the end result feels too riskySolution: design option. Start-up pays for the right to see the end result before deciding whether to buy it	Is the problem we are trying to solve important to customers?Does our solution solve the problem?	False
Channels	Business advisors provide contacts to customers	Can we find customers through business advisors?	False
Customer segments	Start-ups	Are start-ups interested in our value proposition?	False
	Established SMEs	Are established SMEs interested in our value proposition?	

6. Conclusions

This paper presented the case study of a failed service design project. The project was conducted within the Lahti Living Lab context, where different stakeholders and service users were involved in the service design process. The purpose of this study was to explore how to support the use of design in SMEs. An important limiting issue during the service development project was the original project plan, which "forced" a focus on business advisors and intermediary organisations as a customer channel. An initial assumption was that, as a significant proportion of SMEs do not use design services, introducing design to new SMEs would benefit their business. The results of this study demonstrate that in practice, at least in the Lahti region, it is difficult to find a channel through which a segment of SMEs could be reached that needed design and was not already served by current offerings. For this reason, the developing process of a new service failed, as no suitable value propositions and/or customer channels could be identified. The hypotheses defined in the business model canvas failed the critical tests. Either the task of identifying the problem to solve or the customer segment failed. The service was formulated and modified according to the views of the stakeholders, but in the end, no interested service users were found.

The problem appears to come down to the initial assumptions of the project plan and a misalignment between the discovered needs and the actual needs of SMEs. Based on the second initial assumption that regional business advisors are at the very centre of the process of integrating design in the activities of SMEs, this study may have concentrated too much on stakeholders and designers instead of SMEs in the needs-finding phase. In the stakeholders' and designers' view, many SMEs are reluctant to use design. Therefore, the research group focussed the new service on making the beginning of the design process easier and less risky. However, SMEs may actually perceive the final phases of the design process to be the most difficult. Reluctance to use design comes from challenges in the later phases, not the first phases. Therefore, the focus may have been on the wrong phases of the innovation process. This study suggests that in many cases when SMEs do not use design, they may have good reasons. The type of industry, the position in the value chain and the skills available internally all influence the decision whether to involve designers in the SME's activities. When the industry is highly standardised, customers appreciate only functionality and price, the company is a subcontractor and employees are experienced, the benefits provided by design services might be quite limited.

The results of the study have practical implications for development of Living Labs and services they offer to SMEs. The detailed description of the service development approach used in one particular case, points out good practices and potential risks other Living Labs could take into account. First, the tools used to support service development proved to be useful and suitable for their tasks. Service design blueprint made documenting and organising the pieces of the emerging service concept relatively easy and straightforward. Business model canvas directed the focus towards the most important aspects of the new service and provided structure to the testing phase. Problem interviews proved to be great ice-breakers when approaching potential users of the new service. They also provided valuable information on the needs of the customers. Getting familiar with these three tools is highly recommended for anyone managing a Living Lab. Second, the failure to find interested customers for the developed service points out once more the importance of understanding the real needs and problems of the users. Essentially, the developed service was a good solution to a problem no one really had. Ensuring that Living Lab is trying to solve problems that SMEs consider important should help prevent failed service development projects in the future. On the theoretical level, the findings of this study demonstrate the importance of user involvement in the beginning of service design process. Here, users were only involved in testing the service and partly in the service concept development. This was not enough to ensure that the needs and problems of the potential users would have been addressed appropriately in the developed service concept and, thus, finding potential customers turned out more difficult than assumed.

These results support the growing trend of utilising user knowledge in co-creation and co-design processes in Living Lab environment (see e.g. Mulder and Stappers, 2009; Feurstein *et al.*, 2008; Bergvall-Kåreborn and Stahlbrost, 2009).

Limitations of this research emerge from the limited region within which the case study was carried out, that is, the Lahti region, which may impact the generalisability of the results. Furthermore, Lahti region might not be representative of the situation in Finland, let alone in Europe, in general. It should be noticed, that the Lahti design ecosystem is rather advanced in relation to many other European regions and several design support services for local SMEs already exist and, therefore, it can be questioned whether creating yet another support service really increase the demand for design services in the region. Another limitation is the small sample size of the study. The sample consisted of 13 companies not yet using design services and 13 other interviewees. Increasing the sample size of companies might provide new insights not yet discovered in this study.

References

Acklin, C. and Hugentobler, K. (2007), *Design Management for Small and Medium Sized Enterprises: Development of a Design Management Guide for the Use of Design and Design Management within Corporate R&D and Decision Making Processes*, International Association of Societies of Design Research, Hong Kong Polytechnic University, Hung Hom.

Amirall, E., Lee, M. and Wareham, J. (2012), "Mapping Living Labs in the landscape of innovation methodologies", *Technology Innovation Management Review*, Vol 2 No. 9, pp. 12-18.

Bergvall-Kåreborn, B., Eriksson, C.I., Ståhlbörst, A. and Svensson, J. (2009), "A milieu for innovation: defining living labs", *Proceedings of ISPIM 2009*, Vienna, June, pp. 21-24.

Bergvall-Kåreborn, B. and Stahlbrost, A. (2009), "Living Lab: an open and citizen-centric approach for innovation", *International Journal of Innovation and Regional Development*, Vol. 1 No. 4, pp. 356-370.

Bitner, M., Ostrom, A. and Morgan, F. (2007), "Service Blueprinting: a practical technique for service innovation", Center for Services Leadership, AZ State University, Working Paper.

Blank, S. and Dorf, B. (2012), *The Startup Owner's Manual*, K&S Ranch Press, Manhattan Beach, CA.

Bruce, M. and Bessant, J.R. (2002), *Design in Business: Strategic Innovation Through Design*, Ashford Colour Press, Gosport.

Bruce, M., Cooper, R. and Vazquez, D. (1999), "Effective design management for small businesses", *Design Studies*, Vol. 20 No. 3, pp. 297-315.

Chesbrough, H. (2003), *Open Innovation: Researching a New Paradigm, in Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business School Press, New York, NY.

Dell'Era, C. and Landoni, P. (2014), "Living lab: a methodology between user-centered design and participatory design", *Creativity and Innovation Management*, Vol. 23 No. 2.

Edwards-Schuster, M., Matti, C. and Alcántara, E. (2012), "Fostering quality of life through social innovation: a living lab methodology study case", *Review of Policy Research*, Vol. 29 No. 6.

Eisenhardt, K.M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-550.

Feurstein, K., Hesmer, A., Hribernik, K.A., Thoben, K.D. and Schumacher, J. (2008), "Living Labs: a new development strategy", in Schumacher and Niitamo (Eds), *European Living Labs-A New Approach for Human Centric Regional Innovation*, Wissenschaftliche, Berlin, pp. 1-14.

Hyysalo, S. and Hakkarainen, L. (2014), "What difference does a Living Lab make? Comparing two health technology innovation projects", *CoDesign*, Vol. 10 No. 1, pp. 3-4.

Konsti-Laakso, S., Pihkala, T. and Kraus, S. (2012), "Facilitating SME innovation capability through business networking", *Innovation Capability and Business Networking*, Vol. 21 No. 1, pp. 93-105.

Kuosa, T. and Westerlund, L. (2012), *Service Design: On the Evolution of Design Expertise*, Lahti University of Applied Sciences Series A, Lahti, Research reports, part 17.

Lahti Design Strategy (2013), available at: www.ladec.fi/filebank/897-Lahti_Design_Strategy_2013-20 15_eng_netti.pdf

Leminen, S., Westerlund, M. and Nyström, A.G. (2012), "Living labs as open-innovation networks", *Technology Innovation Management Review*, Vol. 2, No. 9, pp. 6-11.

Mager, B. and Sung, T.J. (2011), "Special issue editorial: designing for services", *International Journal of Design*, Vol. 5 No. 2, pp. 1-3.

Morelli, N. (2006), "Developing new PSS, methodologies and operational tools", *Journal of Cleaner Production*, Vol. 14 No. 17, pp. 1495-1501.

Moritz, S. (2005), "Service Design: Practical access to an evolving field", available at: http://stefan-moritz.com/_files/Practical%20Access%20to%20Service%20Design.pdf (accessed 20 April 2014).

Mulder, I. and Stappers, P.J. (2009), "Co-creating in practice: results and challenges, collaborative innovation: emerging technologies, environments and communities", *Proceedings of the 15th International Conference on Concurrent Enterprising: ICE 2009*, Leiden, Centre for Concurrent Enterprise: Nottingham, pp. 22-24.

Nisula, J.V. (2012), "Searching for definitions for service design – what do we mean with service design", paper presented at the Third Nordic Conference on Service Design and Service Innovation, Linköping, available at: www.servdes.org/wp/wp-content/uploads/2012/02/Searching-for-Definitions-for-Service-Design-%E2%80%93-What-do-we-mean-with-Service-Design.pdf (accessed 20 March 2014).

Osterwalder, A. and Pigneur, Y. (2009), Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers, Wiley, Hoboken, NJ.

Schindlholzer, B. (2008), "A definition of service design", available at: www.diametrics.io/a-definition-for-service-design.html (accessed 12 June 2014).

Schuurman, D., De Moor, K., De Marez, L. and Evens, T. (2011), "A Living Lab research approach for mobile TV", *Telematics and Informatics*, Vol. 28 No. 1.

Service Design Toolkit (2014), available at: www.servicedesigntoolkit.org/downloads.html (accessed 15 March 2014).

Ulrich, K.T. (2005), *Design: Creation of Artifacts in Society*, The University of Pennsylvania, Pennsylvania, available at: http://opim.wharton.upenn.edu/~ulrich/designbook.html (accessed 12 May 2014).

Wu, Y.H., Wrobel, J., Cornuet, M., Kerherve, H., Damnee, S. and Rigaud, A.S. (2014), "Acceptance of an assistive robot in older adults: a mixed-method study of human-robot interaction over a 1-month period in Living Lab setting", *Clinical Interventions in Aging*, Vol. 9 No. 1.

Yin, R.K. (2009), *Case Study Research: Design and Methods*, Sage, Los Angeles, CA, p. 219.

Further reading

Business Model Generation website (2014), available at: www.businessmodelgeneration.com/canvas.

About the authors

Juho Salminen, MSc, is a Researcher and a doctoral student at Lappeenranta University of Technology, Lahti School of Innovation. His background is in industrial engineering and management. He has participated in several projects related to Lahti Living Lab. He has also worked as the project manager for the REDI (when Regions support Entrepreneurs and Designers to Innovate) project. Juho Salminen is the corresponding author and can be contacted at: juho.salminen@lut.fi

Satu Rinkinen is a Researcher and a doctoral student at the Faculty of Technology Management at Lappeenranta University of Technology (LUT). She works in research and development projects at LUT's Lahti School of Innovation unit. She has a Master's degree in Geography, and her research interests include innovation policies, regional innovation strategies and systems and regional development.

Rakhshanda Khan, MBA, MEd, is a Researcher at Lappeenranta University of Technology, Lahti School of Innovation, Finland. She received her MBA from Lahti University of Applied Sciences, Finland and Master's in Education degree from International Islamic University Malaysia, Malaysia. For the last 10 years, she has worked mainly in the academic field. Her current research interests include social sustainability and innovation studies, with a special focus on frugal innovations.