



Towards co-creation of service research projects: a method for learning in networks

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Abstract

Purpose – The purpose of this paper is to report a new kind of workshop process which aims at co-creation across disciplines in a service research network. The case concerns Technical Research Centre of Finland (VTT) and took place from January to May, 2009.

Design/methodology/approach – Both foresight and organizational learning methods are combined in the process. During workshops, researchers and management are enabled to co-create interdisciplinary service research proposals and a service research strategy for VTT. The workshops are designed to facilitate a dialogue between users of the research and potential collaborators (universities, funding agencies and societal actors). This initiative reflects the current global service science discourse based on a renewal of service management through service-dominant logic and network thinking.

Findings – Although the need for co-creation across disciplines and together with the customer has often been stated in service research, methods enabling such a way of acting have rarely been tested and achieved. This method worked as a concrete way for managing future-oriented networking across organizational borders as a basis for continuous learning and innovation.

Research limitations/implications – The new approach to service science and the methods used in the VTT network are applicable in research practice.

Practical implications – The development process presented in this paper is an embryo for a new kind of research culture that fosters learning in networks as well as the shared and transparent planning of project proposals.

Originality/value – By creating the service science and business network and a process of learning by foresighting and evaluating our ideas on a concrete case are applied. This is believed to be the first time that methods of foresight and organizational learning have been combined. Furthermore, the process builds a research strategy both from below and above and together with customers and other collaborators thus establishing a network of co-creation.

Keywords Research work, Networking, Strategic evaluation, Customer service management, Learning methods, Finland

Paper type Research paper

1. Introduction: the challenges of a service research organization

Both in business and science, the interest in service is growing rapidly. New theories and concepts show that service has a remarkable influence on processes and operations in companies and other organizations. Service concerns society as a whole, influencing the everyday life of ordinary people. According to conventional statistics, which divide our economies in the goods (manufacturing) sector, the service sector

Eveliina Saari conducted this research while at VTT Technical Research Centre of Finland.



and the agricultural sector, the service sector represent over 70 per cent of the economy in Organisation for Economic Co-operation and Development countries and over 80 per cent in the USA. These statistics, however, are getting increasingly obsolete, one reason is that they usually represent employment, output and cost and do not consider the value or service to customers, citizens and society.

A lot is currently happening in service management, both in theory and in practice. The importance of more functional and innovative service systems is in the core of service science as it is developing in research and education in universities, business schools and schools of technology, supported by the biggest consulting company in the world, IBM (Maglio and Spohrer, 2008). Service-dominant logic offers a synthesis and new conceptualization where knowledge and skills constitute the core of service and where service is approached as the outcome of co-creation between the stakeholders involved, most obvious the suppliers and customers (Vargo and Lusch, 2008). Furthermore, everything happens in a context and therefore network thinking needs developing both in service research and practice (Gummesson, 2008; Barile and Polese, 2010).

The last decades have been successful for Finnish technology companies headed by Nokia. However, the United Nations e-participation index (United Nations, 2008) positions Finland at the 45th place between the Arab Emirates and Honduras (cited in Kosonen, 2009). Although new service business opportunities are facilitated by Information and Communication Technologies and other rapidly developing technologies, the elaboration and implementation of service is too slow. In order to innovate and develop successful service for global markets, we need a future-oriented and interdisciplinary approach, which combines technological knowledge with, for example, behavioural, social and design sciences.

The Technical Research Centre of Finland (VTT) has traditionally focused on the development and application of technology. With its personnel of 2,700 people, VTT provides high-end technology solutions and innovation services for a global market. However, over the past couple of years VTT's interests have extended to technology-based service, service business and service innovation research. Besides a variety of customer funded service-oriented research projects, VTT has invested in service research, for example, by establishing a three-year research programme on service.

This Service Beyond Theme was launched in 2005 with the aim of integrating enabling technologies and concepts for service business. At the end of the research programme an external evaluation was conducted by three international experts. They stated their general view as follows: Service Beyond Theme has compiled a good and diverse portfolio of projects and demonstrated good progress regarding new business ventures, scientific results, and external relationship building. Service research is a new area of research for VTT and the work presented thus breaks new ground internally. Some projects also appear to do so externally, within their fields of research (Leiponen *et al.*, 2008).

They also pointed out bottlenecks on the way to a service-oriented research organization and suggested actions for improvement: VTT needs to further crystallize and articulate [...] project goals and objectives. These goals can include commercially successful innovations, but opportunities to engage in contract R&D for the industry or development of further research and capability within VTT and in external research networks are also valid strategic goals. VTT's service science and innovation activities could target some additional high growth areas [...] All projects should be built on an

analysis and an explicit (articulated) view of the future of the market, technology and players in question. This should lead to an understanding of what VTT's role may be in this landscape. What can VTT contribute, and why should it do it? VTT should strive to be more strategic and more explicit about strategic theme project selection and goal setting (Leiponen *et al.*, 2008).

Finally, the evaluators suggested enhancing VTT's innovation potential by moving to more open, transparent and collaborative research and innovation practices, both internally and with lead users and customers. There appears to be a need to improve knowledge flows within VTT among experts in different projects. Similarly, lead users could be fruitfully engaged more intensively and at an earlier stage in ongoing innovation projects. Community-based work practices that utilize emerging social software and web 2.0 technologies would facilitate the "bottom-up" creation of new links among relevant experts. Ultimately, collective insights gained in this way could lead to new service business opportunities (Leiponen *et al.*, 2008).

These findings and suggestions have inspired the creation of VTT's service science and business (SSB) network and made this possible by creating a fruitful ground among both managers and researchers of the institute. The necessity to transcend organizational and mental silos and to start sharing the knowledge was evident in the research community.

In order to create the SSB network, we combined foresight and organizational learning methods in a workshop process. During the workshops some 30 VTT researchers and management representatives were able to find a shared understanding which led up to a service research strategy for VTT. The workshops were designed to facilitate dialogue between the users of the research, potential collaborators such as universities, funding agencies and the societal actors in the field of service science.

This paper presents a process called "learning by foresighting and evaluating", LIFE. It enables the management of future-oriented networking across organizational borders as a basis for continuous learning and innovation. The process is the embryo of a new research culture towards learning in networks through shared and transparent planning of project proposals. Participants (researchers, customer managers and strategic research managers) have the opportunity to conduct a dialogue across the hierarchy. Furthermore, the process builds up a network and its research strategy both from below and above and does so together with customers and other collaborators.

The workshops of the LIFE process were designed to help the participants of the SSB network to move forward in their "zone of proximal development" (to be defined later) (Engeström, 1999). This expression refers to a situation and terrain of constant ambivalence, struggle and surprise, when the participants are about to create the next actions for the future. In this terrain, the possibility of expansive transformations (Engeström, 2001) or as we call creative shifts may take place. The workshops aimed at creating a learning situation, in which the participants were able to see their research in a wider perspective than before. This expanded horizon meant seeing research projects from the points of view of the management, customers or the research collaborators. In this paper, we analyze an instance of preparing ground for one such creative shift. We describe how we facilitated the dialogue between management and the researchers about a preliminary vision of service research at VTT.

2. A new combination of organizational learning, impact evaluation and foresighting

LIFE derives from the methods called the change laboratory, developmental impact evaluation and roadmapping. The acronym LIFE also characterizes the vivid interaction between different stakeholders during the workshops. The process enhances new face-to-face contacts inside and across organizations and hierarchical positions. It creates new “life” for the research area, which is dispersed in the organization. The theoretical and methodological principles of each approach are described below and encapsulated in Figure 1.

Change laboratory is developed from ideas of expansive learning and the cultural-historical theory of activity (Engeström, 1987; Engeström *et al.*, 1996). The method used in the change laboratory is based on re-mediation and dual stimulation (Vygotsky, 1978). In the method, practioners collect data about their own work and it is interpreted with the help of conceptual models and tools.

Engeström (2001) has pointed out that standard theories of learning in the context of school education have concentrated on an individual acquiring knowledge or skills in such a way that a change in the behaviour of the subject may be observed. This conception presupposes the involvement of a teacher who knows what is to be learned. Engeström (1987) introduces an approach to learning in organizational and workplace contexts, which he calls learning by expanding or expansive learning.

Expansive learning emphasizes the social nature of learning. Learning is not taking place only inside an individual’s mind, but is embedded in the development of activity. The expansive learning approach is a reciprocal theory to sociocultural learning approach (Lave and Wenger, 1991; Gherardini *et al.*, 1998). It considers that learning takes place between people and in the working environment, in its situations, actions, negotiations and using of material artefacts. The theory of expansive learning is especially concerned with how the entire activity system is constantly in a transformation process. Expansion refers to the phenomenon of exceeding the initially given context of specific problems and refocusing on the wider context that generates those problems. An expansive transformation is accomplished when the object and motive of the activity are reconceptualised to embrace a radically wider horizon of possibilities than in the previous mode of the activity (Engeström, 2001, p. 137). In the

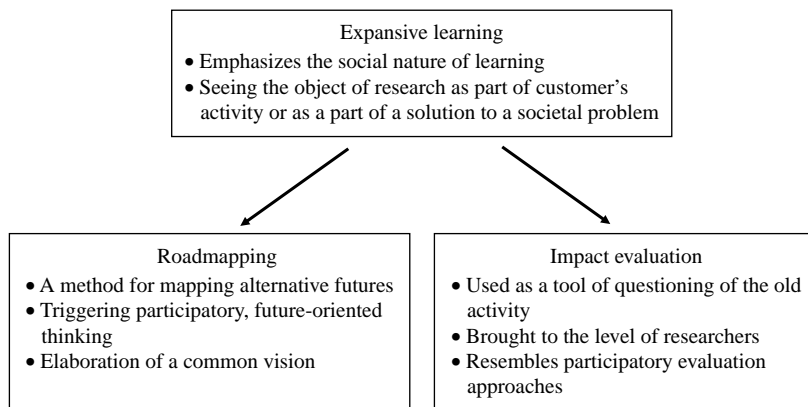


Figure 1.
Theoretical and methodological approaches of the LIFE process

case of a research activity, this means perceiving the object of the research not merely as an opportunity to expand scientific knowledge, but as an integral part of the customer's activity or as a part of a solution to a societal problem.

According to Engeström (2001, p. 137), expansive transformation may be understood as a collective journey through the zone of proximal development. More specifically, the zone of proximal development has been formulated as follows:

It is the distance between the present everyday actions of the individuals and the historically new form of the societal activity that can be collectively generated as a solution to the double bind potentially embedded in the everyday actions (Engeström, 1987, p. 174).

This definition emphasizes that questioning old activity is a starting point to finding new solutions and forming new kind of activity. In organizational learning theories the phase of becoming conscious of the old routinized way of working triggers the need and motive for changing the activity. In the case of learning by the foresighting and evaluating process, the analysis of two past research projects is used in this phase of questioning. As in the change laboratory, we gathered the entire network of actors involved in the activity to analyze their work and ways of working for the workshops, in order to create a situation for collective learning. In the developmental impact evaluation, we combined the idea of an expansive learning cycle and used the concepts of impact assessment of research organizations as tools. The process resembles participatory evaluation approaches (Fetterman, 2001; Friedman, 2001; Torres and Preskill, 2001), which contend that learning from evaluations is not possible if it involves only directors and owners of the organization. However, participatory evaluation processes do not describe how the new learning actions for the future should be concretely taken after the evaluation.

Foresight explores alternative development paths which might take place in the future. It is used to improve decision making with long-term consequences, offering a framework to better understand the present and expand mental horizons. Both qualitative and quantitative methods are used to systematically explore, create and test plausible forthcoming developments, and to evaluate their desirability, importance and acceptability (Masini, 1993; Bell, 1997; The Millennium Project, 2003; Koivisto *et al.*, 2009).

Roadmapping is a practical and largely used foresight approach and a flexible and structured method for exploring and communicating the relationships between societal and market drivers, enabling technologies and solutions needed over time (Phaal *et al.*, 2004). It maps alternative futures by linking the future to the present and helps the elaboration of a vision of the future. Roadmapping is also about strategy visualization and communication. It is a participatory process where the process is often more important than the outcome, a graphical roadmap.

Roadmapping has been widely used in industry since the 1970s, especially in the form of technology-oriented roadmapping. It has been less utilized in research. However, VTT has applied roadmapping in several foresight research projects and with different scopes. Our roadmap concept is based on the diversification of the rationale behind the roadmapping exercise. Traditional technology and product roadmaps present just one relatively narrow application of the method. We have applied roadmapping to scan not only emerging technologies, but also the changing societal contexts and operational environments. Strategic roadmaps addressed to

action planning have been developed. Industrial cluster roadmaps present the widest application of the method applied by VTT.

Furthermore, in the LIFE process we have combined roadmapping and organizational learning methods to foster organizational development and the creation of horizontal networks. In this context, roadmapping has been utilised for triggering participatory, future-oriented thinking within the process with less importance given to the roadmaps themselves.

3. The phases of LIFE process

In the following, we open up the phases of LIFE step-by-step. The phases are introduced as they took place in the context of the SSB network at VTT from January to May 2009. Methodological principles, such as how impact evaluation, organizational learning and foresighting complemented each other, are described in each phase. Figure 2 shows the method as a learning process.

3.1 The need for change – the strategic challenges of the service science and business research in Finland (workshops 1 and 2)

In the first workshop, the participants were gathered to initiate networking between them. They consisted of managers from the strategic research unit, customer managers and senior and younger researchers from 11 knowledge centres of VTT representing different scientific disciplines and knowledge of different industrial sectors. The purpose of the workshop was to become acquainted with each other and launch the process for LIFE. The participants realized that a single workshop was not enough for creating new insightful projects. The discussion revealed the need for a long-term process for co-creating a new direction for service science and business research at VTT.

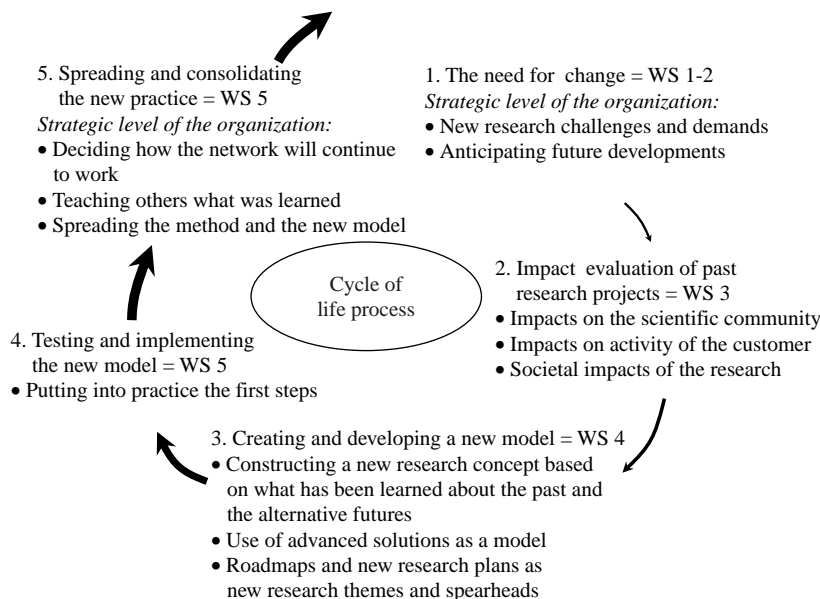


Figure 2.
The phases of the LIFE process

We described the phases of the LIFE process as a draft. We explained that this was the first effort also for us as facilitators to combine foresighting and developmental impact evaluation. However, we had used these methods and processes separately in different research communities with promising results (Saari *et al.*, 2008; Ahlqvist *et al.*, 2008). We called the participants for piloting this potential organizational innovation together with us. Our invitation to co-create was received with enthusiasm and we agreed on conducting four workshops during four subsequent months.

The purpose of the second workshop was to create a dialogue between managers' vision of service research and the concerns of the researchers involved in field. This session is analyzed in detail later on in this paper. For every workshop we brought an outsider's view to inspire the future research directions and alliances of VTT. The first visitor was the head of the service factory from the recently established Aalto University. We allocated participants to six different teams, in which we mixed their organizational positions and gave each group a new identity. In order to bring people "outside of their boxes" the teams were named after different art schools: symbolists, concretists, surrealists, cubists, naturalists and futurists. This measure turned out to be an excellent ice-breaker between researchers with different backgrounds. The fresh identity of a team from a totally different context than science was received playfully.

In the second workshop we developed a service research landscape roadmap 2009-2025 in two bigger groups. Through the first roadmapping exercise we explored opportunities and identified challenges, drawing "the big picture" of the service research in the future. The aim was to expand mental horizons and acquaint the participants with the method. The output, i.e. graphical roadmaps were less important though they would be used later as the basis for an ulterior, more detailed roadmapping exercise.

Following the roadmapping framework in Figure 3, we mapped the pull for service coming from society and markets (why) and the push coming from technological development, legislation and other areas (how). Finally, we brainstormed about how to

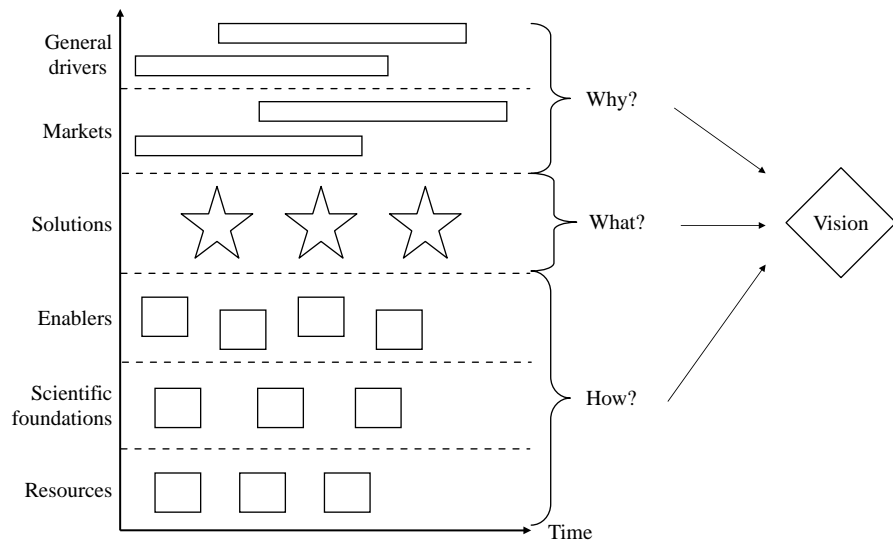


Figure 3.
The roadmapping
framework adopted
in the process

meet future demand of service emerging from why and how levels of the roadmap (what). Directions and ideas for future research were drafted and discussed against the roadmap of the service research landscape.

In the end of the second workshop we chose together with the participants which research projects would represent the past service research at VTT. These were to be used as objects for developmental impact evaluation.

3.2 The impact evaluation of two service science research projects (workshop 3)

In the third workshop, the two past service research projects were evaluated from three complementary perspectives: scientific, societal and customer. The project examples were intentionally chosen to be different from each other. The first project example concerned a service evaluation tool (EVASERVE), which had originally been developed for the information services of the traffic systems and meteorological service, but had potential to be extended to other public service as well. The second project example concerned business models in industrial service (BESEL 1).

Three perspectives of the two project examples were illuminated in the workshop. Before we started we interviewed the customers, the research collaborators and funding agencies and asked them to evaluate the impacts of the projects from their perspective. They were invited to the workshop to present their views to the researchers. If they were not able to come, we video recorded their presentations and used them in the workshop.

In the workshop, the researchers observed the speakers and group discussions were held to interpret the main messages. The participants were given a conceptual tool for analyzing the different perspectives. This tool helped them to see the societal relevance, the accumulation of the knowledge, benefits for the customer and new ways of operating for the organization itself (van den Ven, 2000). This method is called in the psychological learning theories dual stimulation (Vygotsky, 1978). The main purpose of the evaluation of the two projects was to question the old way of conducting research. The qualitative impact evaluation of the two projects made their strengths and weaknesses visible. For example, there are still challenges to utilize the multidisciplinary expertise of the researchers in the best possible way.

In the end of the workshop, the groups created new research themes based on what they had learned from the impact evaluation (the past) and roadmapping (the future) of the service research. We called the result the top ten list of VTT's service research. Before the next workshop, the participants voted for the five most promising themes, which they wanted to develop further.

3.3 Creating and developing a new model – new research plans as spear heads (workshop 4)

The fourth workshop, named back to the future, started with conclusions about the lessons learnt from the project evaluations. Table I lists the challenges that the evaluation raised.

The challenges were kept in mind when the participants started to develop further the selected service research themes. These themes are:

- a service laboratory as a space to integrate different expertise into a service science;
- business to consumer;
- productization of service;

Table I.
The interpretation of the
project evaluations

What was typical and common for the service science projects at VTT?	What are the elements in the zone of proximal development of service research?
Evaluation of existing services	Co-producing service business with public and private organizations
Only one or two research approaches as resources in the projects	Combination of technology, business management, social sciences knowledge in the same research projects
The first projects formed common concepts and language with the customers	Systematic creation of concepts and methods for service research
Development of existing service business concepts	Developing and spreading of service innovations
There was no vision about on which industries the service research should focus on	Should VTT's service research focus on specific industries?
The Finnish context as research object	Global service business as research object

- the challenges of the public-private interface and service innovation; and
- service in a global environment.

The participants were supposed to generate new project proposals and action plans. The roadmaps of the service research landscapes that were produced in the second workshop were utilized for a brainstorming session. In this second roadmapping phase, we had smaller groups and more focused themes compared to the first phase. The aim was to dig deeper into the future of service research by refining the knowledge and organizing, designing and planning real life actions.

In the end of the workshop each team presented their project embryos and plans. They were asked to continue the writing of these plans, which can be characterized as spearheads of the new direction of service research. The plans were expected to be presented in a more developed form in the last workshop.

3.4 Testing and implementing the new research plans and new model of activity and consolidating the new method (workshop 5)

In the fifth workshop, the new research proposals, which represented the spearheads of the strategic focus areas, were introduced and analyzed. Eight proposals were produced for the workshop and their topics varied from service innovations in the public sector to global industrial services and service research methods. We as facilitators were involved in several project proposal meetings. A large group of participants developed the idea of the service science laboratory further on and it was presented as a new research strategy derived from below and from this workshop process. All the proposals were sparred by experts of service science from other organizations and from the management. In this way the cycle was kind of closing up, the dialogue between the researchers and managers, and between collaborators and customers became actual again.

4. An example of a creative shift: facilitating dialogue between management and the researchers

The idea of the LIFE process is to implant a multivoiced learning process in the organization. In previous studies of research organizations, it had been noticed that the dialogue between top managers and researchers was insufficient (Saari and Talja, 2009).

To open the discussion between these actors in the second workshop, the manager was asked to present his vision about the future of VTT's service science and business.

In the second workshop, the task of the researchers was listen the message from the management level and then ponder and compare their own ideas about the future developments and concerns relating to its implementation to their daily work. The discussion was facilitated by "a fishbone" team exercise in order to make the participants' viewpoints and concerns visible (Figure 4).

In the upper part of fishbones, participants were asked to write down the most important points they picked from the manager's vision statement and the state of the operational environment. In the lower part, they were asked to write down their own views and concerns.

Next we analyze this part of the dialogue process as an example of how a participatory process breaks up the routine borders. All of the workshops were video recorded by the facilitators. The tapes were used as a source of data for the analysis; they were replayed and the dialogue was transcribed from them.

4.1 The manager's presentation before the vision

At the workshop, the manager initialized his proposal for a vision statement (Figure 5) by saying: so here it is, the vision that has been on hand for some time now and was shown briefly at the first workshop. This is on a very generic level. [...] At the moment, on a national level we are in a change process in terms of innovation and technology policy. We are renewing our innovation system and different actors are seeking new roles [...] I am convinced that even on a national level no one knows exactly where we are heading. The direction is there though. Universities are getting closer and closer to innovative work, markets and organizations – beside VTT. In the future, the exploitation will be based on a strong academic background. We must unlearn the old roles and ways of acting [...]

So, this is the vision and it is free for everyone to develop further.

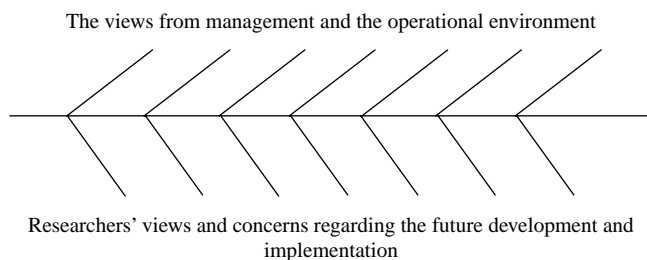
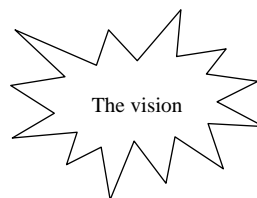


Figure 4.
The fish bone exercise facilitating dialogue between management and the researchers

VTT is an internationally reputable research organization in service technologies and business that produces novel research which have an impact to the customer and society



(Can be further developed...)

Figure 5.
The manager's proposal for a vision statement from the second workshop (a powerpoint slide)

4.2 *The manager's presentation after the vision*

The manager continued, showed another slide and explained how we will know if we have been successful in implementing the vision. He said that after a year we should:

- have a functional research network in the field of service at VTT, and researchers are bonded together no matter how (e.g. developing technology or immaterial services) or where they work (NB: VTT has premises in different locations);
- have a research portfolio that constitutes both ends of the innovation process, meaning scientifically qualified projects and projects that will lead to development of new business;
- be invited as keynote speakers to international conferences;
- have a financial structure mainly based on customer finance;
- succeed well in Finnish research calls; and
- be able to influence the European service research policy.

After a year to two, if we have evidence of these, we know we are heading the right direction.

The manager continued explaining that the ones who are persistent enough are always able to impact the strategy formation and he encouraged people to be active in bringing their thoughts to the management level. He continued: here we are, and this is the big goal (vision) we should aim at. Pushing each others forward. He ended his presentation with a kindly request: so HE-ELP, please.

After the presentation there was time for questions. Only one question was asked. It concerned the formality of the vision: how official is it and how can we influence it?

The manager explained that during spring the strategy process would proceed and that is why we as a group are here today. He asked that: now tell me (the group), what do you want to do? Obviously he was open for ideas and "offered his hand" to the group.

4.3 *The fishbone group work and the discussions*

To help the discussion to arise the researchers were divided beforehand by the facilitators into groups of five. These groups were named after different art schools, namely:

- symbolists;
- surrealists;
- concretists;
- cubists;
- futurists; and
- naturalists.

The groups were given ten minutes to draft their version of the fishbone. The bones were presented by each group and were attached to the wall side-by-side. The main messages from each group are collected in Table II. Below, we present four examples of how the groups concluded their discussions about the vision of the management:

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
From the manager's speech	Internationally known	Stronger internationalisation More clients	Vision is quite technological A need for systematic way of acting The challenges to internationalisation and aspiration to cover all industries	A general view Shared methods and tools, communication, facilitation We need a strategic view of the direction	Vision is technological and international One major national, non-technology-centred funding program Internal, interdisciplinary service research programme should be established	Raising the profile of service science Having a VTT level strategy for service research Renewed steering and finance methods
Own views and concerns	Requires brand management Development of organizations own competencies and knowledge building Networking internally and externally	The focus on the market, how are we seen outside? focusing, co-operation Internal flexibility and networking To develop competencies it would be beneficial to work in service companies, job rotation	How to concretise the vision Acknowledge-ment of core competences and focus to those Combining knowledge from different fields (strengths from the points of interaction), differentiating from the competitors	A need for better communication between management and the researchers Networking, co-operation. New ways of working such as internal job rotation among researchers Shared methods and tools, best practices, shared vision	How to organize and support the development in the future, management's support Should take part in international funding programs Funding allocation and networked way of working	Structuring VTT's service science, identifying potentials Positioning internally/externally/scientifically

Table II.
The groups' interpretations of the vision and the questions raised

Symbolists: I don't know if this fish of ours is a flounder or a bream. The bones are so dispersed (humming). The question was what we should do in order to implement the vision. The vision says "internationally known", that's why we need brand management which should be based on strong knowledge and substance. This calls for adequate number of researchers and ability to combine the knowledge. The development of our own expertise is crucially important. We need strong collaboration and networking with partners and customers. We have to have some kind of mental map where we stand in this service science. We also should be easy to approach and VTT should be seen as a service research organization.

Symbolists emphasized that to become an internationally known service research organization we need brand management, combining of different types of expertise and networking inside and outside the organization:

Concretists: We started to process the management's view about the vision. As it is, the vision seems quite technological. The challenge in everyday life is how to concretise it. It seems that developing this service science and business has to be really extensive. Now it appears that there is an aspiration to work in all sectors. We would prefer to acknowledge our core competencies and maybe we should focus more on them. In addition, we pondered how to add users' voices to this vision about the societal impacts and the challenges of internationalization. [...] We see that our strength and ability to distinguish from the competitors comes from the possibility of combining our knowledge from different perspectives and in this way create new kind of interaction.

Concretists requested more comments from management on how to implement the vision. They pointed out that the vision seemed quite technological. They noticed that the vision does not speak out on which sectors service research should be focused. They also emphasized the capability to combine knowledge across disciplines and industries:

Cubists: [...] We would have liked this fishbone to be thinner, which means better communication between management and researchers. A good way of developing knowledge, networks and broader understanding would be job rotation in and between organizations. We have had good experiences from this already. And then increase collaboration with outsiders. We are doing intense development work with companies. Working physically in the company's premises is a good method for better communication and mutual understanding. In terms of working methods inside our organization, we don't need any service business resource planning system, instead we are hoping for flexible and agile ways of working. We mean shared methods and tools, also and best practices should be taken into account. We are lacking a shared vision, but these workshops aim to that.

Cubists demanded better communication between management and the researchers. They mentioned job rotation as a means to develop new knowledge and networks. Again flexibility of the organization was seen as an asset:

Naturalists: [...] We see that firstly we should raise the profile of service science and business at VTT. There are lots of service projects in our organization, but it seems that they haven't been recognised. But if we want to raise the profile, we should form an organizational strategy and identify where and in what ways we are already doing service-related projects. Our management seems to look for some input from us to the strategy. Should we somehow identify our potential and what we are doing and how it could be positioned in relation to the bigger picture in VTT, its operational environment and of course, what we could do scientifically. We pondered how to motivate people towards a more service-oriented way

of working. This could be supported with new steering mechanisms and funding that would simultaneously support the networked way of working.

Naturalists emphasized the need to raise the profile of service science and business at VTT. They pointed out that the service research projects have not been even recognized in the organization yet. This reflects how dispersed the service research projects are as they are conducted in different knowledge centres. An internal network was warmly welcomed.

After the groups had presented their thoughts the management was asked to comment on them and present a brief summary. This was an effort to further develop the dialogue. The manager presented his comments:

[...] You had similar thoughts to mine. [...] First of all, I see that we are dealing with a typical brand management situation: how to highlight and make visible all the knowledge and the work we have done. We are actually already doing it in a way, when we are communicating with outsiders. That's the added value of brands and it brings credibility. I'm not sure about the funding programmes, I have understood that there are some new programmes and collaboration for service pending. The possibilities are emerging and we have the ability to form international partnerships and we should be active in these. [...] Actually I'm surprised that the question of specialisation wasn't emphasized further. [...] it's a big question. We cannot or should not compete with other major organizations in this field, rather specialize and collaborate. It is also my job to promote this.

Finally, the facilitator gave another opportunity for the researchers to comment on the manager's perspective. A vivid conversation started. The question of where VTT should focus its service research was raised. It was considered important for the network to continue to deal with these questions. Also an appropriate organizational form and the funding of research were discussed.

4.4 The fishbone exercise as the trigger of the dialogue

This was the first warming up group work in the beginning of the LIFE process. Its purpose was to introduce the participants to the participatory group work method and for having equal communication with management. Interestingly, enough, it raised issues which seemed to be crucial starting points for the future service science and research strategy, such as the need to combine different types of expertise, the need for networking internally and externally, and the need for having a dialogue about vision and strategy.

The fishbone exercise made it visible how general the management vision was so far, while the researchers called for guidelines about where to focus on or where to specialize in service research. The dialogue raised up an issue of should we focus only on certain sectors in service research.

The exercise showed how a simple tool, the fishbone, facilitated the dialogue. If the vision had only been presented and the participants had then been asked to comment it, only the most courageous would have spoken their mind. Before the fishbone exercise there was time for comments but only one person used the opportunity.

The idea of using the art metaphor in naming the groups created an open, positive and joyful feeling to the development work. People referred with a smile on their faces to their "art schools". Questions, such as What kind of art form is cubism after all?, were made in the groups. They were joking together: that is obvious for you, you are a futurist after all. They were also referring to pieces of art when illustrating their group

work and there was a feeling of playfulness such as a naturalist stating that he was not going to take his clothes off or a cubist apologising to others for turgidness of their group's fishbone, because they tried to be cubistic when drawing it. The art school identity helped people to move out of their silos and conventional thinking (Coyne *et al.*, 2007).

5. Summary and conclusions

This paper has introduced learning by foresighting and the LIFE evaluation process. It reports a pilot process at VTT to create a network in service science and business research. Five workshops were organized in which the current state of service research was first analyzed. Two past research projects were used as cases to identify the strengths of this pioneering research projects and to question the monodisciplinary way of researching. Before and after the evaluation of the past projects, roadmapping method was utilized to trigger future-oriented collective thinking. Every workshop was an effort "to cross a border" and help participants see their research in a new context and broaden their horizons. Theoretically, this idea is based on learning by expanding theory (Engeström, 1987, 2001).

We have described one of the creative shifts, namely how we facilitated a dialogue between the manager and the researchers. The manager's vision about service research at VTT was challenged with the help of a fishbone exercise. The questions raised in the dialogue, such as the need to combine different types of expertise, the need for better communication between managers and researchers, and where to focus in studying and developing service, were crucial starting points. They were developed more deeply in the workshops that followed.

This process gave birth to our service research network and produced new project initiatives. To continue this way of learning in the networks, LIFE needs to be adopted as a continuous way of planning and organizing research. Our previous intervention processes (Saari *et al.*, 2008) have exposed the important role the middle managers in continuing and spreading this way of operating. For VTT, the LIFE process is also a promising service concept, which we may market as a service for recently established internal research networks.

This first study has proved how fruitful it is to combine the analysis of the past and the design of the future in the same process. Typically, the impact evaluations only identify the strengths, problems and hindrances which should be improved in the organization but they do not offer tools for future activities. Similarly, roadmapping and foresight methods help participants think and plan their future vision and actions disregarding lessons learnt from the past. By combining these methods we created an opportunity for people to learn and to move between the past and the future, and through knowledge silos.

The case of VTT is aligned with the ideas of the service science discourse that is currently being spread around the world. These ideas are also connected to theoretical developments in service management and the new ways of approaching service and value as proposed in service-dominant logic. Method for learning in networks makes a contribution to applications of network theory in management and marketing. Our main achievement is that we applied the process on a concrete case and that we combined several methods to make the process captivating for the participants.

For the future, the theory developments in service will continue. Service-oriented teaching programmes and research projects in universities, in schools of business and

technology, as well as in schools of art and design will continue to expand. Thus, interdisciplinary approaches will multiply. It would, therefore, be of particular interest that more organizations make their service development efforts visible. It means careful documenting of the development processes, methods used in them and analysis of their results and impact.

Post scriptum

In 2009, VTT was more successful than ever in the calls for national service research programmes. The volume of research on service and service business appears to be increasing significantly. The manager referred to in the text takes this as hard evidence of the significant organizational learning that took place within the SSB network exercise during the early months of the year.

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Further reading

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