VITALIZING THE FINNISH DESIGN ECOSYSTEM

Case: Development of the national design network collaboration platform

Master of Arts Thesis
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imagination is everything.
imagination is more important than knowledge.
for knowledge is limited to all we now know and understand,
while imagination embraces the entire world (universe),
and all there ever will be to know and understand.
Albert Einstein (1879—1955)

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Abstract

Design service networks are a current means for Finnish design service providers to broaden their service portfolios and to secure and engage in demanding projects from large clients. Collaboration processes within the design service network are fundamentally constituted of the ways in which designers think and work together, the tools and methods they use within their common projects and the physical and virtual platform provided to maintain and manage the collaboration. Sharing knowledge is a core component of network collaboration. It builds trust between stakeholders; it manifests common values and objectives laying the basis for the creation of new knowledge within the network.

This research project examines knowledge creation activities within the Finnish design ecosystem, namely the development that lead to the creation of the Co-Design Bay - collaboration platform concept in the city of Lahti between 2012-2015. Using data from project meetings, discussions and interviews with Finnish design organizations and the network of knowledge-intensive design business service firms, I explore the theories of Ikujiro Nonaka and his associates. Results from applying Nonaka's theories to the information gathered suggest that, first, utilizing knowledge creation processes collectively in a network setting is more likely to lead to improvements in design services than the application of individual knowledge. Second, sourcing of external knowledge, especially from peers, partners and customers, is more productive in design business development than local and progressive knowledge creation within a service unit. Information gathering from the design ecosystem and co-operation between network partners to find and create knowledge thus support the development of knowledge intensive design services.

The thesis addresses the following questions: 1) What are the reasons that lead to the development of a holistic collaboration platform concept for the national design ecosystem instead of a local internet-based service? 2) What further actions does the application of Nonaka's theories highlight, that could be utilized to vitalize the Finnish design ecosystem? 3) What would be the implications of realizing development processes based on the paths highlighted by Nonaka's theories, compared to the current plan of developing a platform to enhance collaboration between stakeholders of the Finnish design ecosystem?

Keywords: Service Networks, Knowledge Creation, Design for Industry, Design Business, Design Ecosystem, Co-Design, Design Thinking, Finnish Design, City of Lahti

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Tiivistelmä

Suomalaiset muotoilupalveluntarjoajat hyödyntävät verkostoyhteistyötä palveluidensa ja tarjoomansa laajentamiseen. Yhteistyöverkoston osaajista koottavat suuremmat palveluyksiköt mahdollistavat kentän pienille asiantuntijayrityksille laajempien ja vaativampien toimeksiantojen vastaanottamisen, sekä suurempien asiakkaiden palvelemisen. Suunnittelupalveluverkoston yhteistyötiimien prosessit rakentuvat muotoiluajattelu-toimintamallin pohjalle. Työkalut ja metodit joita ryhmät hyödyntävät, sekä niiden ylläpitämiseen käytettävissä olevat fyysiset ja virtuaaliset toiminta-alustat määrittävät prosessien rakenteen ja yhteistoiminnan tason. Tiedon jakaminen on verkostoyhteistyön ydin, jonka kautta määrittyvät yhteistyöyksiköiden tavoitteet ja arvopohja. Tarkoituksenmukainen ja avoin tiedon jakaminen rakentaa luottamusta verkoston sidosryhmien välille ja valaa pohjan uuden tiedon luomiselle.
Tämä tutkimusprojekti tarkastelee Suomen design –ekosysteemin sisäisiä tiedon luomisen käytäntöjä, keskittyen Lahdessa vuosina 2012 - 2015 toteutettuun, Co-Design Bay –yhteistyöalustakonseptin syntymään johtaneeseen kehitysprosessiin. Tutkin aihetta peilaten kehitysprosessia Ikujiro Nonakan ja hänen tutkijakollegoidensa tiedonluomisen teorioihin, hyödyntäen vertailuaineistona suomalaisten muotoiluorganisaatioiden muotoiluintensiivisten teollisuus- ja palveluyritysten projektitapaamisissa, koulutuksissa ja organisaatioiden avainhenkilöiden kanssa käymissäni keskusteluissa aiheesta kokoaamani materiaalia. Nonakan teorioiden hyödyntäminen tutkitun prosessin aineiston analyysiin osoittaa ensiksikin sen, että kollektiivinen tiedon luomisprosessien aktivointi verkostoympäristössä johtaa todennäköisemmin muotoilupalvelun positiiviseen kehittymiseen, kuin yhden muotoilupalveluyksikön sisällä suoritettu kehitystyö.
Toiseksi, erityisesti vertaisryhmiltä, partnereilta ja asiakkailta kerätyn ulkoisen tiedon hyödyntäminen on tuottoisampaa muotoilupalveluja kehitettäessä kuin paikallinen progressiivinen tiedon luominen. Tiedon etsiminen ja kokoaminen suunnitteluekosysteemistä ja verkostokumppaneiden keskeinen yhteistyö tiedon luomisessa tukevat tietointensiivisten muotoilupalveluiden kehittymistä.

Tämä tutkimusprojekti vastaa seuraaviin kysymyksiin: 1) Mitkä syyt johtivat kokonaisvaltaisen yhteistyöalustakonseptin kehittämiseen kansalliselle design ekosysteemille internet-palvelun sijaan? 2) Mitä potentiaalisia muotoilukentän elävöittämistoimenpiteitä Nonakan teorioiden hyödyntäminen tuo esille? 3) Minkälaisia seurauksia Nonakan teorioiden esille tuomien kehitysprosessien hyödyntäminen tuottaisi nykyisiin virtuaalialustan kehityssuunnitelmiin verrattuna?

Avainsanat: Palveluverkosto, Tiedon luominen, Teollisten alojen muotoilu, Design Business, Design ekosysteemit, Co-Design, Design Thinking, Finnish Design, Lahti

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Special thanks go to my supervisor Salu Ylirisku for his support and advice during the writing process.

August 2015

Kristian *"Next summer..."* Keinänen

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1. Introduction

1.1 The background of this research project

This thesis analyzes the development process that aims at enhancing collaboration and vitalizing the Finnish design ecosystem. The process is studied from the perspectives of the knowledge creation theory by Ikujiro Nonaka and his associates. The research process mainly consists of development projects run by organizations located in the city of Lahti, Finland, over a five (5) year period.

The first project "DesThi"[I] aimed to develop service design capabilities within the design ecosystem of Lahti. During the time of the project the Lahti industrial design advisory group IDAB[II] announced the need to enhance customer orientation, the capacity and capabilities of local design service providers, so they could better meet the needs of their client industries. The managers of the DesThi –project took notice of the group's advice and introduced a first concept model of a web platform called the Design Thinking Forum, which aimed to enhance information sharing between organizations within the Lahti Design ecosystem. During the next three years (2013-15) two additional development projects were started in Lahti, during which the city's design ecosystem was utilized as a living lab[III], testing the functionality of various collaborative tools and processes and the Design thinking forum -virtual platform.

In the beginning of the studied process the preconception was that creating an internet-based virtual project platform it would be possible to enhance the capabilities of the Lahti design service network's service providers. The functions of the platform would enable stakeholders to manage their common projects and exchange information. During later stages it was discovered that instead of introducing a virtual service for a niche user group, what was actually needed was developing a holistic collaboration platform that could vitalize both the local and national level design ecosystems. The focus of the process went through a gradual development, beginning from focusing on the original virtual platform concept aimed for Lahti region's local design service network, then focusing on developing the concept of a broader platform utilizing a design service collaboration process, supported by virtual knowledge creation and management tools, and finally into a holistic concept of a collaboration

platform aimed for the national design ecosystem, with both physical- and virtual knowledge creation- and process management functions.

The Co-Design Coaching[IV] -project (CoDeCo, May 2013 - March 2015) continued the development through utilizing the Lahti design service network as a laboratory for co-design processes and the collaboration functions of the design service network. Within the CoDeCo -project the task given by the IDAB –board to enhance the design service network's user orientation and develop the capacity of it's service providers was seen as a leading thought by both the project management and the participating companies. The idea was to form network teams out of the design service SME's of Lahti. The teams would be formed according to the needs of each customer case introduced in the project. The project workshops for the CoDeCo –participants and the pilot projects executed for industry clients were facilitated by professional coaches with the aims to experiment with existing collaboration methods and collect best practice data for the development of collaboration tools that would enhance the future work of customer-driven design service teams rounded up of experts from Lahti -based design firms. These co-operation teams were to serve local industry SME's as permanent strategic partners and look for large domestic corporate- and public sector clients that were currently unachievable due to the small size and limited resources of Finnish design firms. The Design Thinking Forum –virtual information exchange platform concept was introduced to the project teams as a medium for project management and as a resource distributing process tool files, case –examples and industry news to keep the users professionally up-to-date. The forum was also presented to the representatives of local and national level design organizations whose comments suggested developing its functions and contents from the current local network focus towards a more universal actuation within the industry.

Discussions with design industry representatives during CoDeCo -project meetings and with the representatives of local design related organizations [V] lead to the presumption: The existing development projects and frequent industry gatherings among other design related activities in Lahti region combined with current co-operation and subcontracting methods, are the adequate means to activate the natural forming of customer-driven co-operation units among design service providers. This

would be achievable with the premise that interesting national and international challenges are introduced to them and the virtual information-sharing platform is further developed to support the processes. The needed information platform would enable the stakeholders to keep in contact with each other, exchange information and coordinate co-operation projects over distances. Consequently, a development project for the creation of a comprehensive knowledge creation platform was started in late 2013.

1.2 Objectives of the study

A literature review was conducted focusing on finding reflection and inflexion points to understand the decisions made regarding the studied process. The literature review concentrates on the analysis of the academic papers by Ikujiro Nonaka and his associates. In addition the review lists insights gained through theories by fundamental thought leaders related to the aim and purpose of this study. The discourse within the fields of knowledge creation and the general development of design discourse were reviewed, which supports the primary goal of understanding the platform development process in Lahti.

This research project depicts from the perspective of Ikujiro Nonaka and his associates knowledge creation theory why the development strategy of the Lahti design ecosystem changed from it's original focus on creating a virtual information management platform towards a more holistic, systemically integrated approach, finally introducing a co-operation process manual for the national design service network and developing both physical and virtual project frameworks to develop the capabilities for collaboration and co-design[4] among stakeholders of the Finnish design service ecosystem. The research also highlights possible paths for further development through Ikujiro Nonaka's and his associate's theories.

A secondary aim of the research project was to analyze the existing co-operation methods of Finnish design service networks through investigating the best practices and project platforms of the Finnish design ecosystem. Thus a group of design and

business professionals related to the studied processes were interviewed in order to support the research and to better understand the decisions made during the process and to understand the functions and goal settings of current Finnish design networks. The interviewees are stakeholders of the Lahti design ecosystem who deal with local and national design networks in their day-to-day profession.

The analysis describes the process which has lead from the original given brief of developing a virtual platform to the planning and presenting of the concept of a holistic collaboration platform called the Co-Design Bay, which consisting of both virtual and physical elements which aim to enhance networking processes within the national design cluster. My personal goals is to understand how the design service providers in Finland form networks, share knowledge, communicate and co-operate to be able to describe the processes that empower collaboration within design networks, communities, and domains. Furthermore I want to find ways to enhance collaboration within the Lahti Co-Design Bay -service network and the national design ecosystem through the processes of knowledge creation, exchange and management. This research will also give insight on possibilities to further develop the Co-Design Bay -platform's functions and ways to put them into practical everyday use.

2. Theoretical Starting Points
- Knowledge creation as a phenomenon

2.1 Research Question

This thesis analyses the development process that originally aimed to create a virtual information-sharing platform for the Lahti design service network, but finally lead to the development process of a holistic collaboration platform to better vitalize the national design ecosystem.

The thesis systematically addresses the following three questions:

1) What are the reasons that lead to the developing of a holistic collaboration platform for the national design ecosystem instead of a local internet-based service?

2) What further actions does the application of Nonaka's theories highlight, which could be utilized to vitalize the Finnish design ecosystem?

3) What would be the implications of realizing development processes based on the paths highlighted by Nonaka's theories, compared to the current plan of developing a platform to enhance collaboration within the Finnish design ecosystem?

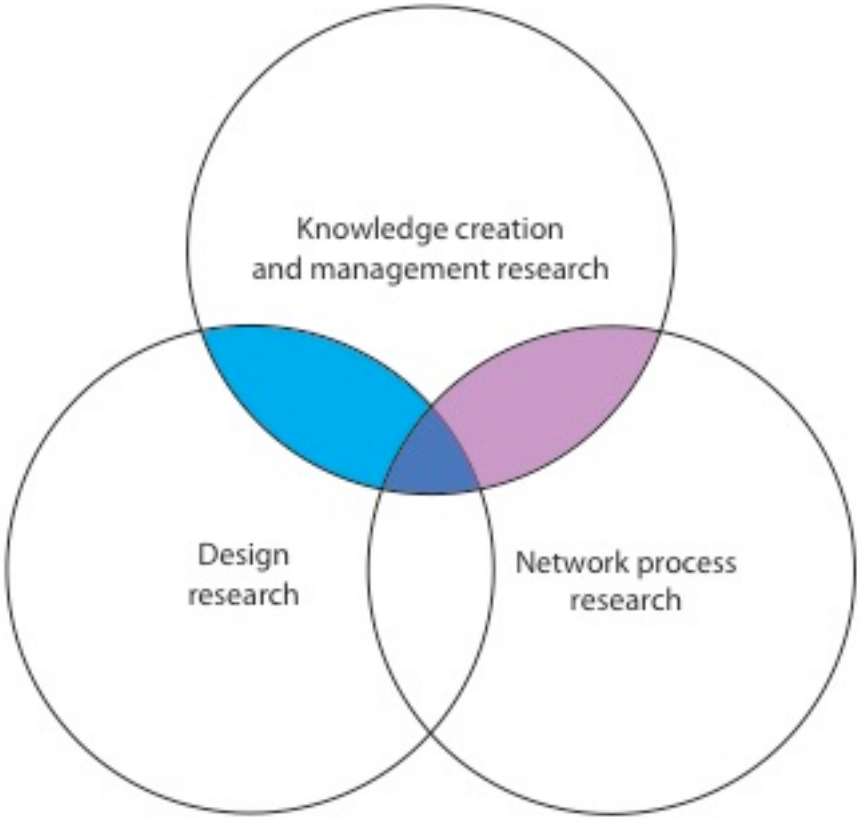
The secondary questions are:

a) What kind of functions and processes support networking activities and knowledge creation within the Lahti design ecosystem?

b) How does the created virtual platform enhance interaction between various design stakeholders?

c) Would there be more efficient ways to activate collaboration within the design field?

d) How could the possible alternative solutions be implemented in an effective way?



Pictogram 1. Research areas of relevance to the research topic

The study uncovers insights into the development processes of networking and knowledge creation within the Finnish design ecosystem. Furthermore it brings understanding on the roles and effects of design as a means of developing processes, physical surroundings and strategies within the design domain itself.

The study also depicts the best practices of how co-operation can be enhanced within the national Design cluster and how to enhance the communication and strategies that will support design service providers, design buyers, government entities and third sector organizations work together in more productive ways.

2.2 Literature Review

2.2.1 Originality and value of the study

Have there been similar projects run previously?

To the best of the authors' knowledge, no systematic research on the topic of knowledge creation within the collaboration platforms of the Finnish design ecosystem has previously been published in academic journals. However the topic of knowledge creation within network settings in general is not new for research.

2.2.2 The approach of the review

The review consists of a systematic analysis of the referred empirical articles related to the topic of the study. In order to understand the development that lead to the creation of the Co-Design Bay –concept, in the context of this study, the theories of Ikujiro Nonaka et al. Should be clarified; how they function, what their processes contain and what their application in the context of the development process of Co-Design Bay brings forward. Since there are other theories involved in the knowledge creation related discourse the main sources will be briefly presented in accordance with the thesis topic as a part of the literature review. The literature for this review has been chosen for its significance for the topic and by the significance of the author for the topic. The literature review covers discourse on knowledge creation beginning from the 1990's when Nonaka and his associates released their early theory concepts. It is significant to note that in their early study (1995) Nonaka and Takeutchi brought up the importance of "knowledge creation" to the long-term success of an organization. Due to the lack of earlier study on the subject they compiled the theory of knowledge creation, through analyzing correlations between knowledge acquisition, problem solving capacity, new knowledge creation and organizational performance, in the point of view of organizational vision and strategy.

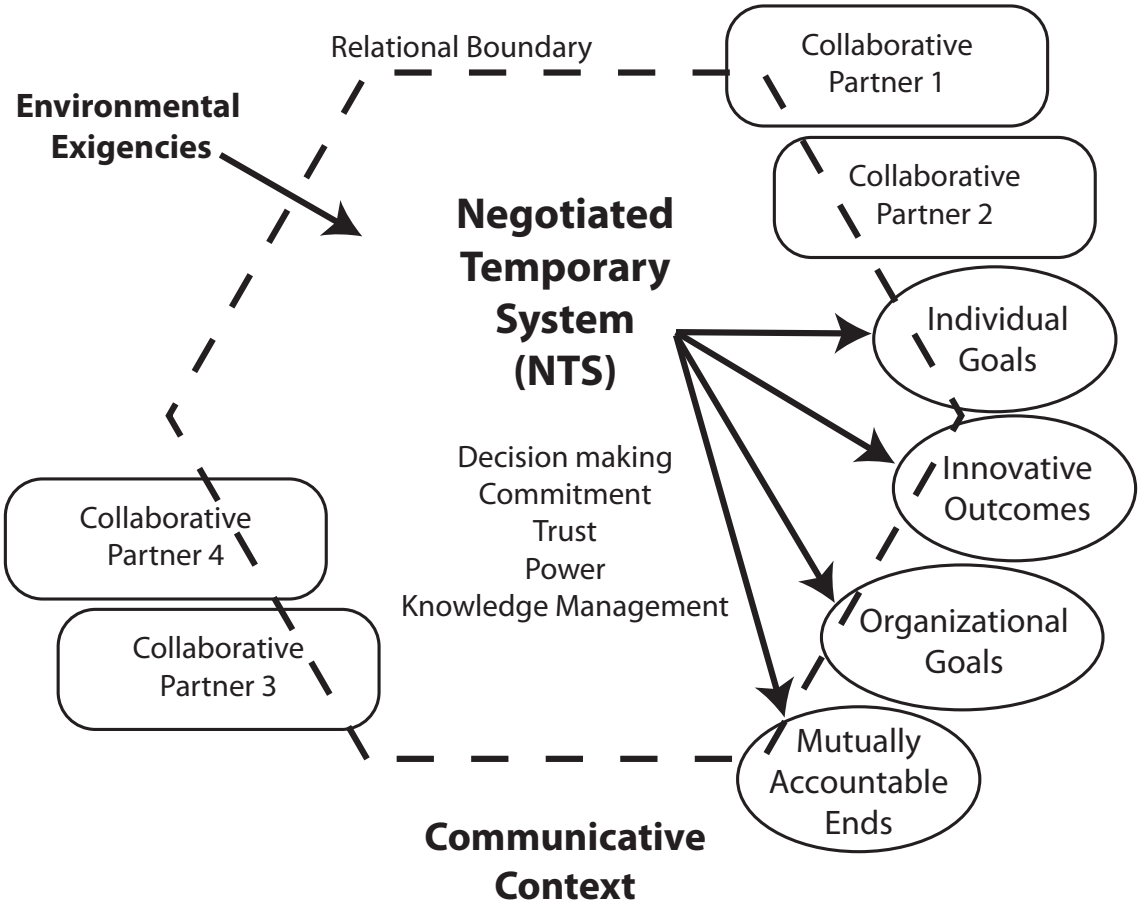
In order to gain understanding on the topic of this study in the context of small and medium-sized design enterprises and service networks the study required search for literature related to knowledge creation, -transfer and -management in SME's and networks. References from earlier research conducted in AALTO University, a G-index analysis on Google Scholar and h-index[VI] analysis showed that the theories of Ikujiro Nonaka, Ryoko Toyama and Noboru Konno are the most widely referenced in the field of knowledge management. Thus I chose to focus on Nonaka et al.'s research. Due to the knowledge intensive quality of design as an activity and industry it became evident that Nonaka's and his associate's frameworks of strategic knowledge creation suit well in the context of analyzing the development of the Finnish design ecosystem, both in micro; network teams and individual design experts- level, and macro; -local and national design ecosystems- level. This study showed that the viewpoints in Nonaka's original work from year 1994: "A Dynamic Theory of Organizational Knowledge Creation, (Ikujiro Nonaka, Organization Science, Vol. 5, No. 1, 1994) and the later work by Nonaka, Noboru & Konno: "SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation" contain the knowledge creation and management frameworks needed to depict the current situation within the field of design service business in Finland. Further on it gives suitable viewpoints to analyze the possibilities for future development towards a more functional and collaborative national design ecosystem.

The literature review focuses on finding reflection points from Ikujiro Nonaka's and his associate's theories of knowledge creation to understand the decisions made regarding the development process and to highlight possible paths for further development. The theories of Ikujiro Nonaka, Ryoko Toyama and Noboru Konno are the most widely referenced in the field of knowledge management thus I chose to begin from reviewing their respective perspectives on the topic. The literature review showed that Nonaka's theories on knowledge creation greatly inform the frameworks necessary to analyze the development process which lead to the introduction of the Co-Design Bay –concept. It is also suitable for depicting the current situation within the field of design service business in Finland from the perspective of enhancing mutual trust and understanding, which are the needed means to enhance the possibilities for collaboration between key service providers. Furthermore it gives suitable viewpoints to analyze the possibilities for further development towards a more functional and collaborative national design ecosystem.

2.2.3 Network co-operation and team dynamics

Organizations co-operate when it benefits their functions or gives possibilities to enhance their capacities by utilizing each other's capabilities. Co-operation can be based for example on answering the demands rising from a new operational environment or technology or it may aim to develop new technical or social innovations for mutual benefit. These motives affect the levels and phases of the collaboration and the modes of interaction between the stakeholders.
Typically organizations utilize project teams to complement existing organizational structures. Project teams have multiple authority, responsibility and accountability relationships that lead to shared decisions, results and rewards. Peters and Austin state in their research that small-scale team organizations and decentralized units are vital components of top performance. (Tom Peters and Nancy Austin, "A Passion for excellence", Fortune, May 13, 1985, pp. 20-32)

The members of a co-operation team have to combine resources, abilities and cunning for a set period. Together they have to reach both personal and common goals. The members of the team have a common goal or their personal goals are somehow linked with each other. They may have an objective that cannot be reached alone by any of the individual team members. Co-operation may happen face-to-face or through technological means, it may happen across organizational borders without time or space constraints and its leadership may be divided throughout the team (Stohl & Walker 2002, 238)



Pictogram 2. The Bona-Fide –Group Collaboration model

(Stohl & Walker, 2002, 243)

2.2.4 Definitions of "Information" and "knowledge"

The terms "information" and "knowledge" are often used interchangeably, there is a clear difference in their meanings. According to Machlup (1983), information is a flow of messages or meanings that might add to, restructure or change knowledge. Dretske's (1981) Definition is: *"Information is that commodity capable of yielding knowledge, and what information a signal carries is what we can learn from it."* (Dretske, 1981, p. 44). Knowledge is identified with information-produced (or sustained) belief, but the information a person receives is relative to what he or she already knows about the possibilities at the source (ibid, p. 86). As knowledge is conventionally defined as "justified true belief," this convergence needs to be based on the "justification" or truthfulness of concepts. The inducements to initiate a convergence of knowledge may

be multiple and qualitative rather than simple and quantitative standards such as efficiency, cost, and return on investment (ROI). (Nonaka, 2002)

The dynamics and social sides of knowledge are brought up in several research publications. Ikujiro Nonaka has criticized the traditional way of seeing an organization as only a system that is processing data and knowledge. He has pointed out that an organization should be seen as an entity that through it's functions and interactions above all creates new knowledge.

According to Nonaka, tacit knowledge is *"a continuous activity of knowing".* Communication between individuals may be seen as an *"analogue"* process that aims to share tacit knowledge to build mutual understanding. This understanding involves parallel processing of the complexities of current issues, as the different dimensions of a problem are processed simultaneously. On the other hand, tacit knowledge has a personal quality, which makes it hard to formalize and communicate. Tacit knowledge is deeply rooted in action, commitment, and involvement in a specific context. By contrast, according to Nonaka, explicit knowledge is discrete or *"digital",* and captured in records of the past such as libraries, archives, and databases and is assessed on a sequential basis. "Explicit" or codified knowledge refers to knowledge that is transmittable in formal, systematic language.

Drucker introduced the concept of "knowledge society" in 1968. The concept was further developed by Bell in 1973 and by Toffler in 1990. The concept of knowledge society can be seen as the basis for the theory of knowledge creation:

"A knowledge society generates, processes, shares and makes available to all members of the society knowledge that may be used to improve the human condition. A knowledge society differs from an information society in that the former serves to transform information into resources that allow society to take effective action while the latter only creates and disseminates the raw data."

- Wikipedia (https://en.wikipedia.org/wiki/Knowledge_society)

2.2.5 Knowledge Management – Excerpts from the discourse

The evolution has leaded us from the Information society to a knowledge society. The value of a product or service lies in the experience, meaning, or discovery the consumer extracts from it. The biggest challenge within the knowledge society is to address creativity. The concept of knowledge design looks at the people working in an organization from the perspective of their contributions to the organization. Knowledge design is a function through which deep understanding of the developed subjects and the technologies used are brought into the processes, frameworks and actions. Through their intellect, experience, and skills the people create, apply and synthesize knowledge. The main ingredients for the practice of knowledge design are sincerity and the sharing of passion across teams and organizations. The future will turn businesses, their clients, designers, architects and government organizations into "partners" sharing knowledge and creating content. (Noboru Konno, 2009)

"The "ultimate endeavor" of knowledge management is to make better decisions through utilizing knowledge. "

- The Society for Finnish Information Specialists, 2014

"Leading through knowledge means continuous optimizing of the organization's actions, based on receival of relevant real-time information concerning the functions of the organization and its surroundings."

- Tero Kulha, Information Specialist, Eeranka Ltd. 2014

In 10 December 2014 a seminar was organized by the Society for Finnish Information Specialits[6]. The CEO of information management solution provider Eeranka Ltd., Mr. Tero Kulha presented a list of "10 theses of knowledge management" which had been compiled based on current research and stakeholder interviews conducted by the knowledge leadership work group of the Society.

The 10 theses of information management by the Finnish Association of Information Specialists:

1. Apprehend information per se, aweigh of technology - Technology is a utility
2. Apprehended information management holistically - It is not limited to explicit knowledge
3. Manage information in the same way you manage quality
4. Appreciate your knowledge and ensure you master it
5. Combine internal and external information
6. Invest in analysis, crystallization and demonstration
7. Identify the utilization methods of your information - decisions, position analysis, and innovations
8. Analyze the success of information management
9. Utilize common information architecture to manage organizational structures
10. Systematically develop your information management capabilities

(Tietojohtamisen 10 teesiä –presentaatio, Tero Kulha, Eeranka Ltd., Täsmätiedon aamupäivä -miniseminaari, Helsinki, 10.12.2014)

A list of areas within the domain of organizational knowledge and skill management, compiled from the resource materials:

1.0 Primary knowledge and skill areas
    1.1 Scope management
    1.2 Technical performance management
    1.3 Schedule management
    1.4 Cost management
    1.5 Configuration management
    1.6 Planning
    1.7 Resource management

2.0 Supporting knowledge and skill areas

- 2.1 Risk management
- 2.2 Communication management
- 2.3 Contract administration
- 2.4 Negotiation
- 2.5 Leadership
- 2.6 Decision making
- 2.7 Marketing
- 2.8 Customer relationship
- 2.9 Personnel conflicts

(Compiled from several sources)

2.2.6 Definition of Knowledge Creation

Knowledge creation means the process of strategic creation of new knowledge within an organization. Nonaka's early work on knowledge management: A Dynamic Theory of Organizational Knowledge Creation can be considered a "Magnum Opus" within the field (Ikujiro Nonaka, Organization Science, Vol. 5, No. 1, 1994)

At a fundamental level, knowledge is created by individuals. An organization cannot create knowledge without individuals. The organization supports creative individuals or provides a context for such individuals to create knowledge. Organizational knowledge creation, therefore, should be understood in terms of a process that "organizationally" amplifies the knowledge created by individuals, and crystallizes it as a part of the knowledge network of organization. Nonaka calls the Level of Social Interaction within an organization's knowledge creation process "The Ontological Dimension".

2.2.7 Ikujiro Nonaka's and his associate's theories

"Organizational knowledge is created through a continuous dialogue between tacit and explicit knowledge." - Ikujiro Nonaka (1994)

Ikujiro Nonaka defines innovation as a process in which the organization creates and defines problems and then actively develops new knowledge to solve them. Co-operation between individuals or organizations requires information sharing. The process through which information is shared and knowledge is created varies according to the means of communication that are utilized. The amount and quality of accessible information affect the outcomes of the collaboration, furthermore the attitudes, know-how and experience of the stakeholders together with the tools and methods used to gather, evaluate and distribute information as a part of the projects impact their outcomes. It is important to know where in the organization or in its stakeholder groups the most relevant information can be found to support the topic at hands.

Face-to face -communication is effective in most cases of knowledge sharing, as it enables real-time dialogue. On the other hand modern technologies permit vast amounts of information to be accessed and shared in structured and perceivable ways without time restrictions. Active communication between collaborating organizations builds trust and mutual understanding that supports innovation processes and helps to clarify and correct lacks and misunderstandings within their discourse.

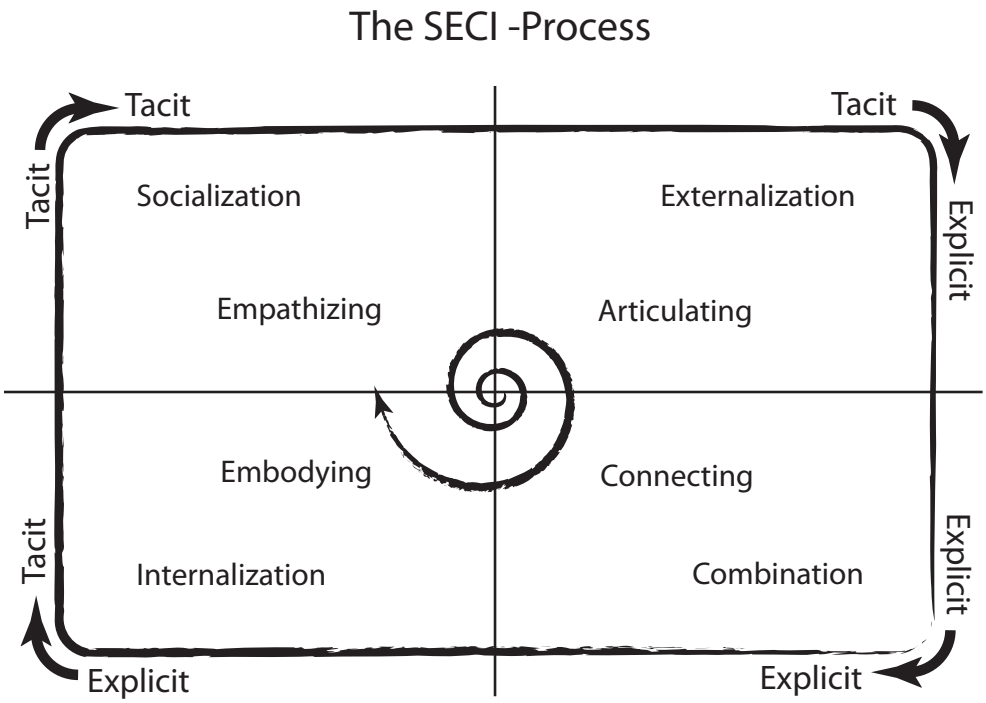
Nonaka proposes that an organization should be studied from the viewpoint of how it creates information and knowledge, rather than with regard to how it processes these entities. In his words "Communities of Interaction" contribute to the amplification and development of new knowledge.

The SECI -model of Knowledge Creation

Nonaka's early "spiral model" of knowledge creation model, SECI, is based on a process in which information is transforming from individual tacit knowledge to collective explicit knowledge and back to collective tacit knowledge, thus creating a continuous

refinement process. The process consists of continual dialogue between tacit and explicit knowledge. Gradually, concepts, which are thought to be of value, obtain a wider currency and become crystallized. The process first converts tacit knowledge through interaction between individuals that he calls "socialization". Secondly the reconfiguring of existing information through the sorting, adding, re-categorizing, and re-contextualizing of explicit knowledge can lead to new knowledge. This he calls "combination". Thirdly conversion of tacit knowledge into explicit knowledge, which he calls "externalization." The fourth phase, conversion of explicit knowledge into tacit knowledge, which bears some similarity to the traditional notion of "learning", is called internalization.

The model has been criticized for example for it's focus on Japanese business culture, but it has also been widely utilized and referred to. According to the SECI -knowledge creation process the knowledge within an organization begins with socialization and is transformed through externalization and combination towards the phase of internalization (Pictogram 1). The model suggests that knowledge creation is cyclic: after one full cycle in the process knowledge transforms on to a next level, which could mean for example from an individual to a team or from a team to the whole organization.



Pictogram 3. The SECI -process (Nonaka & al. 1995)

During the socialization phase of the SECI-process implicit knowledge is delivered between individuals through sharing experiences, based on existing mental models and know-how. Implicit knowledge is commonly submitted through informal face-to-face interaction. Trust between stakeholders positively affects the transmission of the knowledge.

The externalization phase transforms knowledge from implicit to explicit. Externalization may be enhanced through e.g. informal group work where implicit knowledge is conceptualized by communicating it through metaphors and models. This creates the foundation for new knowledge.

During the combination phase the new explicit knowledge is combined with existing explicit knowledge and organized into new entities. It may be transmitted through meetings, conferences, databases and other technical means like e-mail and social media.

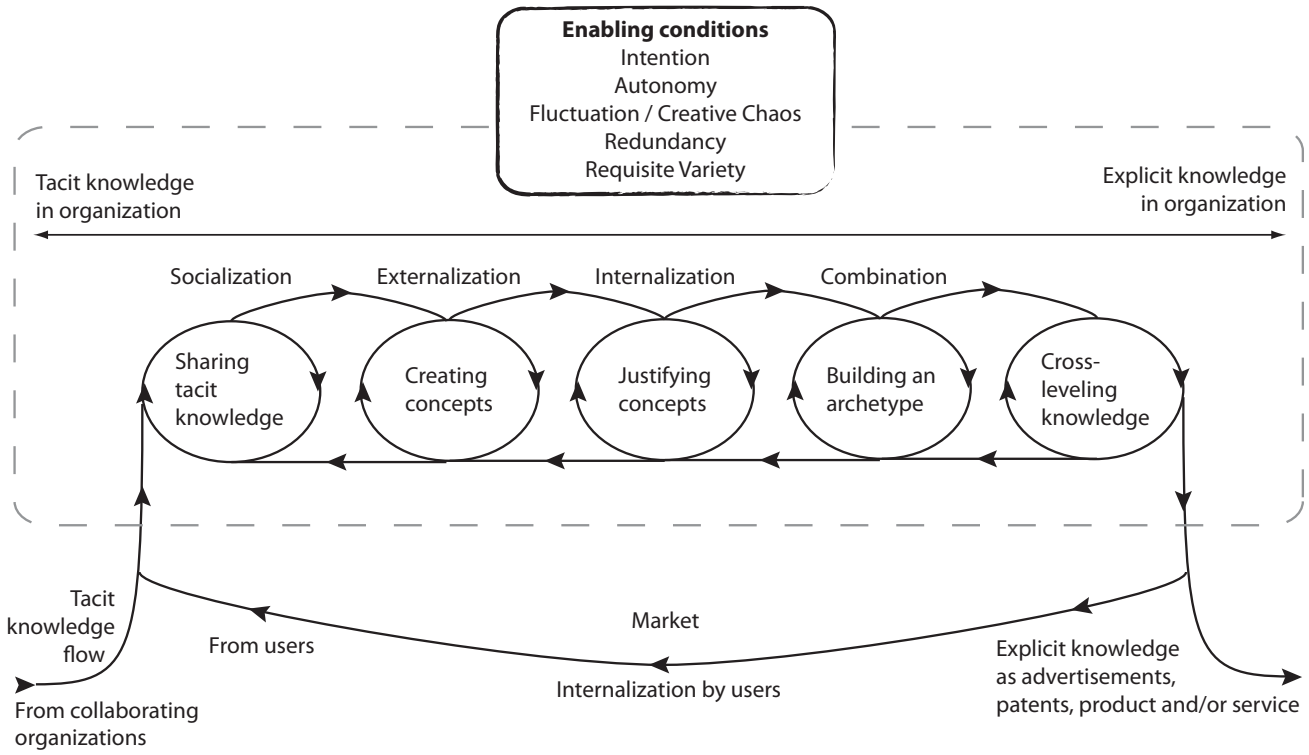
During the internalization phase explicit knowledge becomes once again implicit. The organization modifies their existing knowledge into new variations and links it with current working methods and processes. Supporting organizational learning through

informal collaborative hands-on -processes may enhance the internalization of knowledge.

Lacks in communicational skills or e.g. internal conflicts within the organization may slow down or prevent knowledge delivery, transformation and assimilation.

The five phase model of knowledge creation

Knowledge creation may be studied in a broader than personal or team level. Ikujiro Nonaka and Hirotaka Takeuchi (1995) developed the five-phase model of knowledge creation to cover organizational and network processes in a broad scale. (See pictogram 4.)



Pictogram 4. Five-phase model of the organizational knowledge creation processs (adapted from Nonaka & al. 1995)

The five phases of knowledge creation depicts the broad scale in which an organization or community may create and distribute knowledge at different levels. Furthermore the community has to be able to link the knowledge to new products and services in addition to their value structures and processes.

The five-phase model is based on the SECI –process which advances from level to level within a timeframe. The distribution of knowledge may start for example between individual designers (Sharing tacit knowledge - related to the socialization -phase of the SECi-process). Then it may further to their team (Creating Concepts – Externalization in SECI), their business unit (Justifying concepts - Internalization in SECI) and finally on a broad scale to their organization and collaboration networks (Building and archetype – Combination in SECI). During the third and fourth phases the information is evaluated in respect to its functionality and strategical relevance. In the fifth phase the new explicit knowledge is distributed and further developed. Furthermore new knowledge at different levels from both outside and inside the organizations is obtained along the five phases. This may change the organization's processes and behavior that depicts the learning capability of the organization.

According to Nonaka and his colleagues the middle management of an organization has the best possibilities to combine the three main elements of knowledge creation. The vision that has been formulated by the top management to guide organizational knowledge creation is brought into action by the middle management. The middle management is also liable of combining the SECI-process together with the contexts or surroundings of knowledge creation – the BA, and the organization's knowledge assets into a functional and versatile process. The productivity and results of knowledge creation processes can be enhanced through generating a work environment with information redundancy - access to substantial information resources related to the organizations activities. Information redundancy also enhances knowledge transfer and thus mutual understanding between stakeholders. The knowledge creation processes are run according to the vision that gives the direction to the knowledge creation process and knowledge management projects. The stakeholders of the knowledge creation process are interacting with each other in a specified knowledge creation context, which Nonaka calls BA (derived from Japanese term "Basho" - "place" or "locus" - introduced by Japanese philosopher Kitaro Nishida).

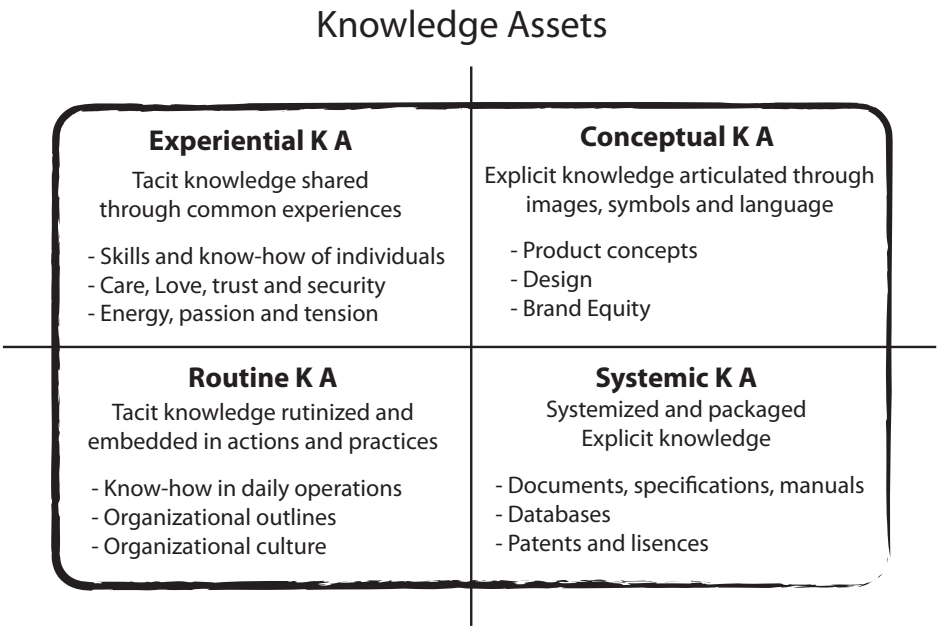
The organizations vision defines what kinds of information needs to be created in each field in which the organization functions in, which directions the organization's knowledge base will be developed towards and which values and norms to evaluate it through. These values and norms derived from the organizations vision act as

guidelines within the development processes of the organizations knowledge assets. (Nonaka, Toyama & Konno, 2000)

Knowledge Assets

Ikujiro Nonaka et al. define the four categories of knowledge assets created within the SECI process as the foundation for new knowledge creation. The categories are: experiential-, conceptual-, systemic- and routine knowledge assets.

1. Experiential knowledge assets are difficult to conceptualize as they are created as a combination of organizational tacit knowledge, skills and know-how of individuals. Experiential knowledge assets are shared through common experiences, interaction and expression of feeling and attitudes within an organization. This makes them difficult to copy, thus they may become a main competitive asset to an organization.
2. Conceptual knowledge assets consist of explicit knowledge that is articulated through symbols and conceptual models. They are based on aspirations and experience of the organization expressed by its personnel and stakeholder groups. Conceptual knowledge assets are a combination of for example the organizations reputation, it's public image and the qualities it's products or services have been able to express. Positive conceptual knowledge assets may bring a corporation for example better positions in the markets compared to rivals with equal technological resources and know-how.
3. Systemic knowledge assets consist of organized explicit knowledge packaged in digital databases, manuals and documents. It may be derived from the organization's experiences, stakeholder feedback and outcomes of its projects. Systemic knowledge assets can be combined into novel concept descriptions that may need patenting or other protection that renders them visible to rivals and the public but also turns them into active assets for e.g. licensing.
4. Routine knowledge assets are tacit knowledge routinized and embodied into the functions and practices of an organization. It consists for example of the organization's know-how and how it is shared and utilized in daily operations, and of it's routines and atmosphere as parts of it's organizational culture.



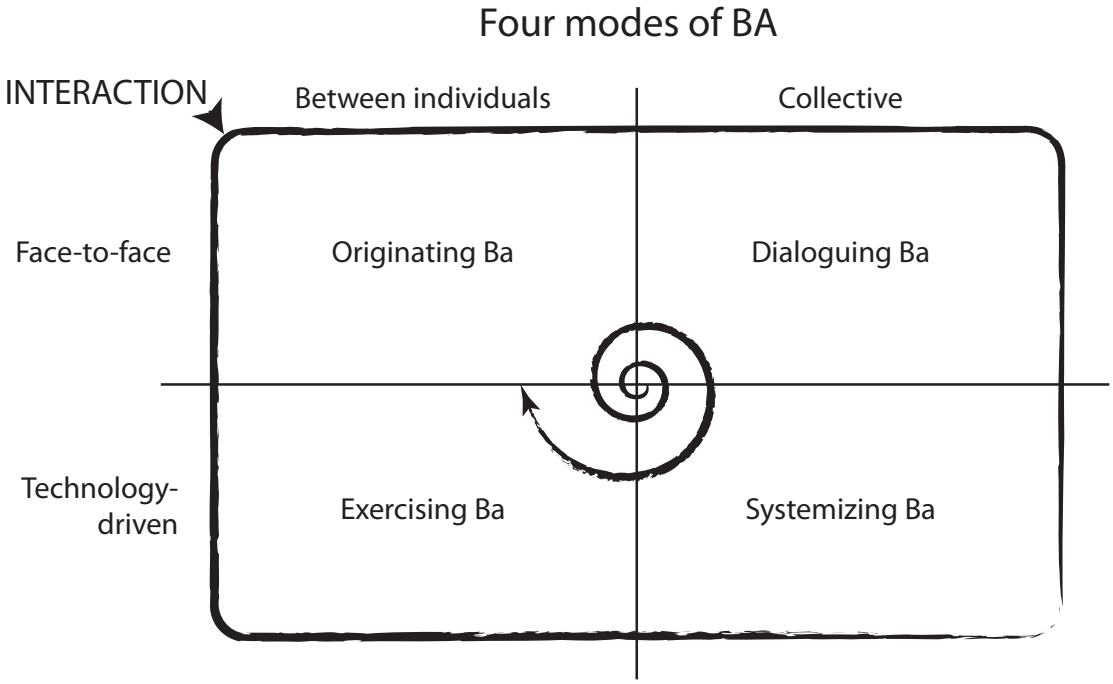
Pictogram 5. Four categories of knowledge assets (Nonaka & al. 2001)

BA – Context of Knowledge Creation

The stakeholders of the knowledge creation process are interacting with each other in specified knowledge creation contexts. Ikujiro Nonaka calls them "BA".

BA is a word derived from the Japanese term "Basho", which has several meanings. The meaning relevant from the perspective of the terminology used in this research is the concept of "place" or "locus", introduced by philosopher Kitaro Nishida, and further developed by cognitive scientist Hiroshi Shimizu and finally obtained by Ikujiro Nonaka to be used to describe the context for organizational knowledge creation processes.

According to Nonaka et al. (2000) BA is the context of thinking and action where the stakeholders at different levels of individual and organizational co-operation interact with each other, enhancing facility for knowledge creation. The BA consists of four categories supporting the advancement of the SECI-process in which knowledge turns from tacit to explicit and back creating new knowledge assets based on to the organizations vision.



Pictogram 6. The four modes of Ba - Contexts of knowledge creation (Nonaka & al. 2000)

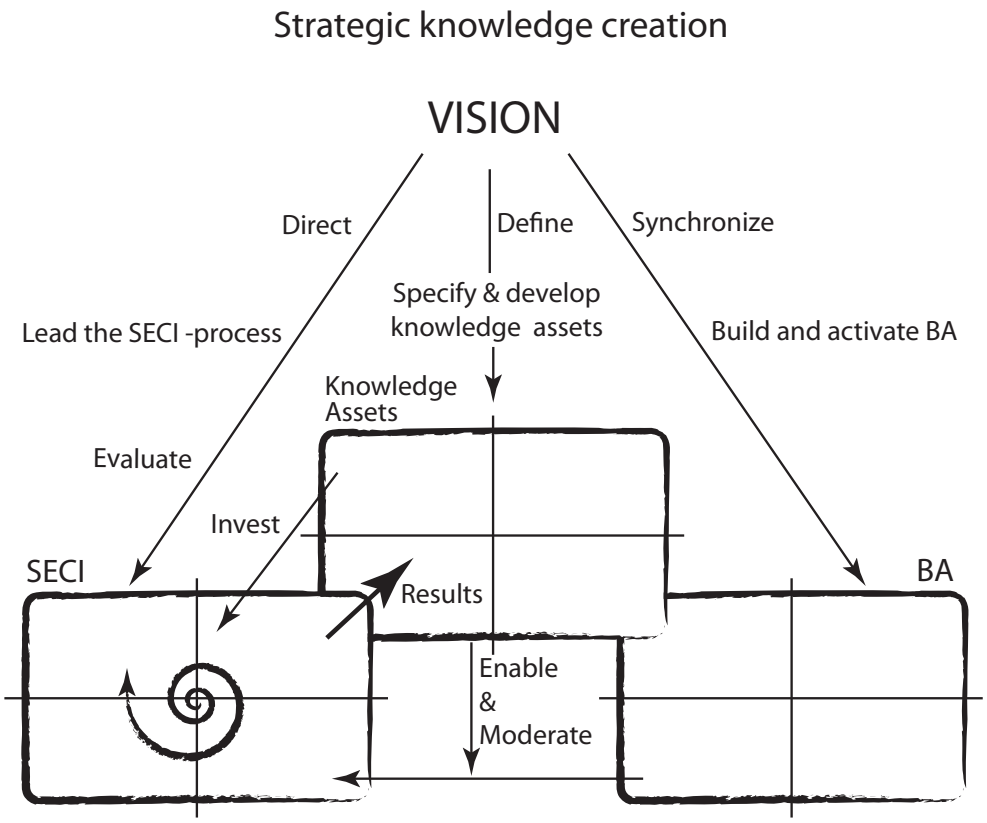
BA has four categories that confine the ground for knowledge transformation and combine BA to the SECI-process. These categories are:

1. Originating BA in which stakeholders submit their individual feelings experiences and ideas face-to-face through socializing. It is connected to the socialization –phase of the SECI-process. The originating ba helps trust to form between stakeholders, which is the basis of knowledge creation.

2. Dialoguing ba where stakeholders share their tacit knowledge through articulated interaction. Dialoguing ba - expressing tacit knowledge in a commonly understandable way - is integral for the innovation processes. This is connected to the Externalization –phase of the SECI-process.

3. Systemizing ba, which is a virtual space for collective technology driven interaction. It enables combining knowledge through utilizing databases, internet portals etc., so it is connected to the combination phase of the SECI-process.

4. Exercising ba, which supports the internalization of new knowledge. Group work, supported with IT- and communications technologies enable stakeholder groups to utilize the created knowledge in actual or simulated hands-on cases.



Pictogram 7. The unified model of knowledge creation (adapted acc. Nonaka & al. 2000)

The universal theory of knowledge creation

According to more recent studies by Nonaka, Toyama, Konno (2000) the creation of new knowledge has to be in line with the vision and strategic goals of the organization. Knowledge management projects and processes are typically run by middle management, according to the organization's vision and strategy which are outlined by it's top management. (Pictogram 5.)

Their Unified model of knowledge creation combines the three main elements of knowledge creation according to the vision of the top management in an organization: The SECI-process, the context of knowledge creation (ba) and the knowledge assets. The interrelation between these three main elements is directed by the vision, which should be clearly defined by the management to ensure successful knowledge creation within the organization.

Utilizing the universal knowledge creation theory through combining its three elements – knowledge creation, knowledge assets and BA – an organization is able to create and manage knowledge effectively.

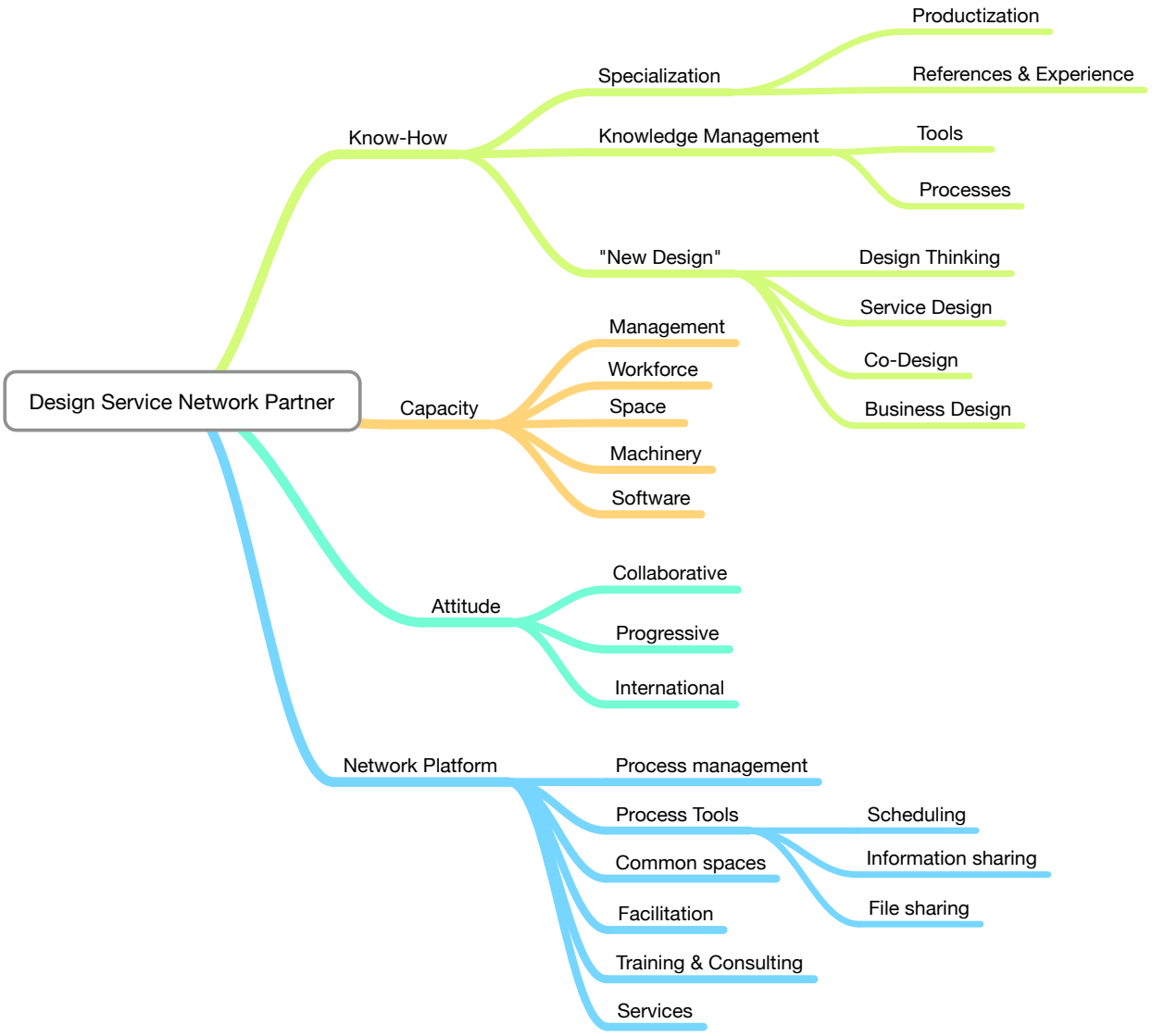
2.2.8 Transformation within design Disciplines

Current topics in design discourse

The concepts "technical innovation", "product innovation", "strategic-" and "organizational innovation" are thoroughly defined by Lewin and Stephens (1992). These terms draw the domain in which industrial design traditionally has operated.

After the high time of design management in the 90's (M. Oakley, 1990; B Borja de Mozota, 1990; R. Cooper et al. 1995; K Best, 2006) the service spectrum of the design markets has developed rapidly. During the first decades of the 2000:s design thinking (Tim Brown), and service design were introduced in a broad scale. Design took a broader focus from manufacturing and product development towards branding and marketing. The roles of designers have developed from product and visual orientation towards service and experience design and finally strategic business design, which holistically develops organizational processes. The understanding among decision makers of the multiple uses of design has brought design thinking and design tools and methods to use in leading corporate and social transformation processes and in solving wicked problems in businesses and societies on both local and global level. Co-Design tools and processes facilitated by professional designers have enabled non-designer stakeholder groups at different levels to take part in development processes that were traditionally seen as fields of highly specialized design professionals (Fuad-Luke et al., 2015). Design has broadened its spectrum to multiple fields of society and it has been

democratized to empower all stakeholder groups to take part in development processes.



Pictogram 8. Essential capabilities of a design service network partner

"New Design" – Vital areas for knowledge creation

The transformation within the domain of design from product and visualization focused craftsmanship towards facilitation, coaching and consulting, empowering

strategic processes within the society and client organizations has lead to a significant change in the designer's working environment. Still the tools and processes used in workshops are very much the same. Keeping up with the development of this "New Design" brings up additional requirements for experts in modern full-service design service companies. Design service providers should develop their processes to meet the new standards – In addition to the traditional skills of concept creation, visualization and prototyping a versatile design service provider has to handle the tools and processes of 1. Co-Design; especially the facilitation methods for inclusive workshopping with stakeholder groups within varying value chains, 2. Design Thinking; the designer's traditional tools and processes utilized for problem solving in new contexts, 3. Service Design; designing the user experience, processes and surroundings of both physical and electronic services, and 4. Business Design; understanding business strategy and value settings as elements for designing new processes and ROI.

The Co-Design Coaching –project run in Lahti showed that the elements of New Design are vital knowledge assets for current design service networks as most potential case projects described by the client prospects touched at least one of the mentioned fields. It became apparent that most design SME's involved in the CoDeCo -project lacked in skills and knowledge of the mentioned elements. However the knowledge needed to utilize one or more of these elements can be easily transferred between stakeholders within a network as the basic structures and methods of designing remain the same in most parts of the processes, with only the context and outcomes of the work changing significantly. In the following section the elements of New Design are further elaborated:

Co-design

Today challenges within societies and the business sector are often characterized by having multiple stakeholders, none of which have a complete understanding of the challenge, the system or its dynamics. Co-Design helps to deal with these challenges from a multidisciplinary perspective. Identifying stakeholders in a co-design project from the different levels of the society's or an organization's value chain helps ensure that a more systemic understanding of the problem or challenge is reached. In co-design workshops design thinking tools and processes are utilized in knowledge

creation tasks facilitated by professional designers. In the end co-design helps create a more effective design brief which leads to solutions that are more likely to lead to positive or optimal end results from client or end-user perspective. Co-Design also helps managing development process of new technologies and systems, through bringing up new perspectives and insight from within the organizational value chains. (A Fuad-Luke, 2015)

Design Thinking

Business leaders and managers have given a great deal of attention to design tools and methods in order to create novel ideas and innovation within their corporations. In addition, the visibility of design in media has increased the awareness of what design profession actually represent and how design can enhance the value companies give to their customers with their products and services.

According to the CEO of IDEO, Tim Brown (2008, p. 88-90), the five aspects defining design thinking are:

1. It is *Holistic* - Design thinking is embedded within, spread throughout and affecting the organization as a whole. It is a systemic way of thinking that affects all internal and external corporate processes.

2. It is *Empathetic* - meaning that the people within a design thinking organization can see the subjects of development from multiple perspectives: the user's, client's, colleague's, etc. Through this they can e.g. predict and describe different use cases and users for a product or service.

3. It is *Experimental* – utilizing simulations, use cases or prototyping "upstream" of the development process – beginning from the first stages of innovation, contrary to the usual utilization "downstream" - at the later stages.

4. It is *Participative* and collaborative – Different stakeholder groups – e.g. end users, factory staff and clients are involved in the innovation and development

processes. It also means active communication between the end users and the organization, creating things together with the stakeholders.

5. It is *Creative* - The organization continuously aims for new, fresh ideas, products and services through utilizing e.g. brainstorming and ideation with no limits or critics, especially upstream of the development process. Creative ideas grow from combining insight within diverse, multidisciplinary teams.

Business Design - Design for competence

"To maximize impact on corporate outcomes, design should be the path to understanding stakeholder needs, the tool for visualizing new solutions, and the process for translating cutting-edge ideas into effective strategies" (Jeanne Liedtka, 2010)

Turkka Keinonen (2008) points out that regardless of the size of investment, design can have significant impact within corporations through serving a variety of objectives: design for vision, design for competence, design for expectations, design for control, design for meaning, and design for presence. To maximize its effects the focus of design needs moved from its traditional aim on product development to an emphasis on its part in business development. Designers should be positioned in new branches in the organizational hierarchy, and let them tap into team intelligence, creativity, and ambition through utilizing design tools and processes to enhance creativity in new contexts. This helps to enhance customer experience both functionally and emotionally. (Turkka Keinonen, 2008*)*

2.2.5 Summary of the literature review

The domains of knowledge creation, knowledge management, and knowledge transfer are well-researched topics. Nevertheless the process of knowledge creation within the Finnish Design Ecosystem has not been under active analysis. Given the prevalence of design SME -networks for the future development of Finnish design there is a strong need for research on the topic. The future research directions proposed in this study may help to develop a greater understanding of knowledge creation and management

in small and medium-sized design enterprises and the value chains and networks formed by them. This is essential as the sharing of tacit knowledge within these networks is an effective way to update their functions and capabilities to the current level required to deal with demanding development processes for client businesses and organizations in Finland an in the international markets. The capacity and capabilities to fulfill more demanding customer needs result in better income, turnover and references for the design businesses and in increased value and broader service portfolio for the clients to utilize. In the end this leads to increasing business opportunities for the design firms and to the increase of design intensity and added value within the client businesses and our society.

Findings

In Nonaka and his associate's SECI –process the tacit knowledge of an individual turns into tacit knowledge of the community and further on to the active use of the whole organization. – The SECI -process suits in as a framework for the Co-Design Bay –platform. -> Individual design professionals bring in their know-how into the network through working in the co-operation projects. They share their experiences and best practice –know-how to their peers in the collaboration teams. The process of knowledge creation is enhanced through the project processes: Each project team collects the needed know-how through choosing the suitable professionals to join the project from within the network. The tools and processes needed to fulfill the client's problem form a pool of potentially new and useful information suitable for the creation of new knowledge for the network. The created knowledge is then distributed as useful concept models to the ecosystem and finally returns to be used as a part of the know-how of the individual professionals.

Furthermore, the universal process of knowledge creation can be utilized as a framework throughout the Co-Design Bay –platform: Individual professionals and teams bring their know-how and resources to the design service network through collaborating in the network teams. The shared customer projects gather the needed know-how (tacit knowledge), tools (explicit knowledge) machinery, processes and spaces (BA) from within the network, and forms teams through utilizing the specialists who have the right knowledge and resources needed to develop and submit the

solutions to the customer. The outcomes and experiences of each project are shared with the network, which turns it into new tacit knowledge for the individual professionals and explicit knowledge through the development of common project processes and tools.

The Muotoilufoorumi -virtual platform supports the processes described in Nonaka's four categories of knowledge creation. The discussion forums helps stakeholders within the design service ecosystem to innovate through providing a medium for dialogue on current project related topics. This medium for dialogue enhances the exchange of tacit to tacit -knowledge and it's development towards explicit new knowledge. The case bank, research database and tool and process description databases make explicit knowledge attainable for the stakeholders. This helps the ecosystem to develop new ideas and combine knowledge which according Nonaka's model eventually build up into new tacit and explicit knowledge. Nonaka states that the "shareability" of knowledge created by pure socialization may be limited and, as a result, difficult to apply in fields beyond the specific context in which it was created - e.g. collaboration in design projects. However, his model shows that access to the functions of Muotoilufoorumi -virtual platform supports and accelerates the design service ecosystem's development into a "Community of interaction", through offering a medium in which tacit knowledge can be discussed with peers and combined with explicit knowledge databases.

3. The Research Project – Methods and data

3.1 The background of the project

In this thesis research I have applied the theories of knowledge creation by Ikujiro Nonaka & Hirotaka Takeuchi (1995) and Ikujiro Nonaka, Ryoko Toyama & Noboru Konno (2000) in a process examining the development projects related to vitalizing the design service ecosystem of Finland. The theories were applied to analyze the outcomes of the development process and to highlight possible further development needs and possibilities. My goal was to point out what correlations the chosen

development strategies that originated in the city of Lahti have with the viewpoints derived from Nonaka and his affiliate's theories - what had been planned in level with the theories, what was finally implemented and reached from the theories perspective and what possible new development lines the theories would bring forward.

3.1.1 Starting point of the project: Background for the choices

Representatives of key organizations within the Lahti Design ecosystem issued a perception of the existing conventional subcontracting processes being a core, which would help activate collaboration between specialists of the Lahti design service network as long as the stakeholders are provided with interesting co-operation possibilities and a virtual platform on which they can manage their common processes. However during this research project it was discovered that instead of a virtual service, developing a holistic collaboration platform that could vitalize both the local and national level design ecosystems was more apparent and needed.

3.1.2 Introduction of the case -organizations

Key interviewees from the perspective of this study have been the representatives of Lahti based organizations in the regional Industrial Design Advisory Board (IDAB).

IDAB is a regional body formed by executives from large-scale industry corporations, Universities, Design companies and -organizations, and representatives of the city of Lahti. Its main purpose is to develop the Lahti Design Strategy released in 2013 and support the implementation of it.

Representatives:
Vesa Luhtanen, Chairman – Managing Director, L-Fashion Group (LUHTA); Chairman of the Board, Design Foundation Finland
Anssi Rantasalo, Former Chairman – Managing Director, Kemppi
Riikka Salokannel, board member – Business Development Director, Best Before UX Research Ltd.; Former Design Director, Ladec Ltd.

(http://www.designlahti.fi/en/DesignLahtiAdvisoryBoard)

The development versions of the virtual and physical collaboration platform have been presented and discussed with Lahti-, Helsinki- and Turku based design service providers during the Co-Design Coaching –project between May 2013 and December 2014. The insight gathered during these discussions has worked as a guideline in the platform development process.

Co-Design Coaching: http://www.ladec.fi/ladec/hankkeet/360/en/

Furthermore the platform concepts and collaboration methods presented in this research project have been discussed with the representatives of the following main organizations of the Finnish National Design Ecosystem:

Finnish Association of designers Ornamo

The Finnish Association of Designers Ornamo is a professional, non-profit organization in the design sector. Ornamo represents trained designers and industrial artists working professionally. Around three quarters of Ornamo's members are working in design sector and the remaining quarter in artistic work. Ornamo's members work in the fields of industrial design, textile, fashion and furniture design, interior architecture, immaterial design, digital content, user interfaces, packaging design, service design, game design, craft and art.
(http://www.ornamo.fi/en)

Representatives:
Karoliina Vilander, President
Salla Heinämäki, Executive Director
Janita Korva, Specialist

Design Forum Finland

Design Forum Finland is the promotion organization of Finnish design. It is run by the Finnish Society of Crafts and Design which, established in 1875, is the second-oldest design-industry organization in the world.
The mission of Design Forum Finland is to support affluence and competitiveness in the economy and society by promoting widespread utilization of design.
(http://www.designforum.fi/en)

Representative:
Mikko Kalhama, Managing Director

International Design Foundation

The Cities of Helsinki, Espoo, Kauniainen and Lahti established the International Design Foundation in 2010 together with the City of Vantaa. The foundation was in charge of the World Design Capital Helsinki 2012 initiative. The Design Driven City – project now continues the work in these cities. The foundation is temporary, functioning until 2017. Other organizations in the background include Finland's Ministry of Employment and the Economy, Aalto University and University of Helsinki.

Representatives:
Tiina-Kaisa Laakso-Liukkonen, Counsel of the foundation, Project Director
Mikko Kutvonen, City Designer

(http://www.toimivakaupunki.fi/en/)

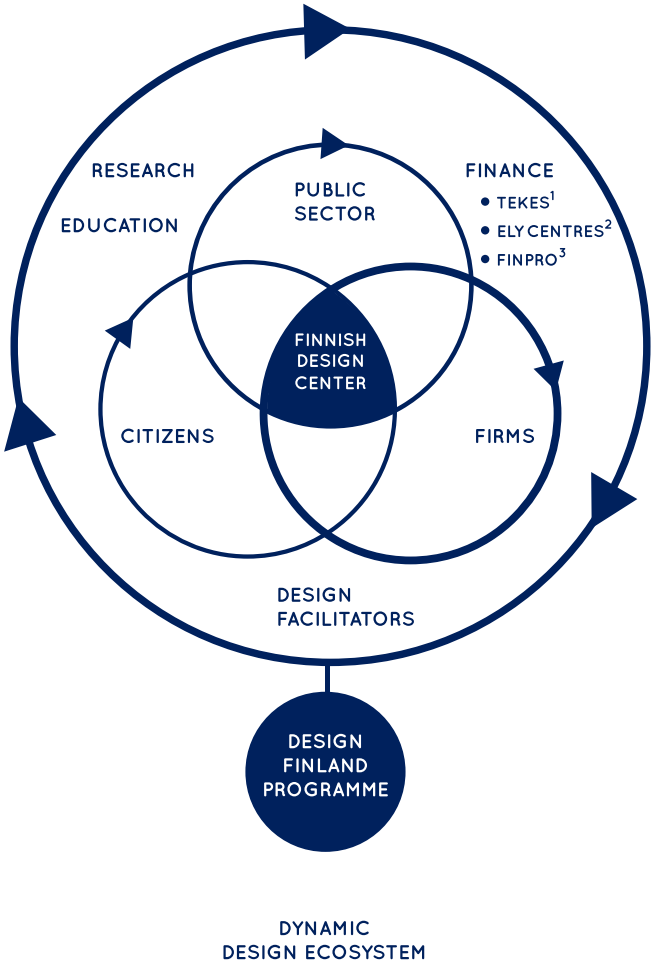
3.1.3 Finnish Design Strategies

Finnish design service providers are generally too small to serve international corporations at the level of strategic design (Society for Finnish Work, Industry Barometer / Design, 2012). Furthermore, our design companies have minimal possibilities to grow within the domestic markets due to the limited amount of solvent clientele (statistics: design intensity in Finnish service and technology companies). According to experience gathered during recent internationalization projects within the Finnish design cluster (Satu Miettinen, Uni. Lapland 2013), the size, speed and service variety demanded by large-scale enterprises can be reached through combining the forces of small expert firms.

The aims were to bring together highly specialized design service providers to build larger units with better capacity and broader know-how.

The preconception was that a virtual platform would be a solution which would activate collaboration through providing means for network partners to share information, keep a common schedule and discuss project related issues.

Co-operation negotiations during the national design strategy process in 2011-2012 pointed out that Finnish design businesses and organizations have been rivals concerning government- and EU-funding, and positions in development projects. The organizations have had overlapping agendas within the cluster, with minimal or no contact with each other. This has lead to a low overall effect per spent support euro and has slowed down the development of the design cluster and it's processes.



Pictogram 9. Stakeholder Groups of the Finnish Design Ecosystem

According to experience gathered during the past decade networking is the most effective way to grow a design business in Finland. Nevertheless it seems to be hard to collaborate within the design community. Internationalization has brought new opportunities to design businesses in Finland. Of the various possible processes that enable networking within the design community and domain the model utilized by

Finndex group was chosen as the starting point for the development of a leading process.

Design business networks are a contemporary phenomenon. During the first decade of the 2000's it became common for small-scale design and cultural enterprises to join forces into marketing and sales units. Four co-operation methods can be recognized: business merger, sales and marketing collaboration, shared design management and joint venture (Huippu Design Management Ltd., The "Laatumerkki"-project, FDE Finndex Group Ltd.). The cases lead to different outcomes: the merger lead to layoffs, while the collaboration units prospered. Over time some of the loose co-operation based units changed their original processes and tightened the relationships between the stakeholders. The principal conclusion is that network based co-operation has enhanced the possibilities of design businesses and the general prosperity and contentment of their client companies.

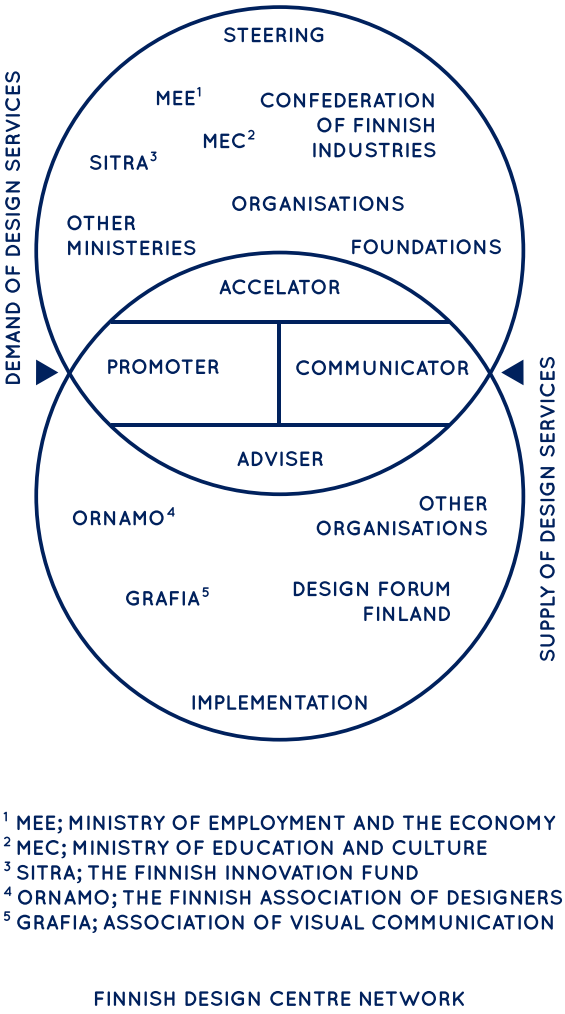
Muotoile Suomi - National design strategy

The aim of the Muotoile Suomi national design policy is to make design one of the core competences of the business and public sectors in Finland.

The main objective of the Design Finland programme is to improve the competitiveness of Finland through design competence and its effective utilization. The programme is based on a broad understanding of competitiveness as a sum of both economic elements and more general factors contributing to well-being. These include the capacity of businesses to survive in intensifying global competition, user-friendly public services and a clean living environment and nature.

In the context of the programme, design competence means the capacity to both design and utilize design in business, in the public sector and more widely in society. Design competence is intellectual capital consisting of several different factors.

(http://www.tem.fi/files/39560/design_finland_programme.pdf)



Pictogram 10. The Finnish Design Ecosystem

The Lahti Design strategy

The Lahti Design Strategy assumes that the Lahti region will "specialize in the design of sustainable industrial products and services that benefit business life and will be developing Lahti's brand as a design city". CleanDesign in particular, i.e. combining environmentally friendly technologies, materials and processes with user-oriented industrial design, is the special "key" to help companies in the region develop new competitive products and business.

Now, Lahti Region Development LADEC is responsible for coordination of actions and execution of the strategy. Funding is provided from different sources that include the city, LADEC, industry and EU funding. Industrial Design Advisory Board holds regular

meetings, 2-3 times per year, to monitor the implementation progress. Lahti Industrial Design Strategy includes the guidelines for the qualitative and quantitative measurements of growth of the design ecosystem and the evaluation will be held at the end of the project. It was however already appreciated by the Finnish Government, who has used the strategy as a benchmark for developing the Design Finland Programme – a national design policy.

Sources:
http://www.ladec.fi/filebank/897-Lahti_Design_Strategy_2013-2015_eng_netti.pdf

http://www.seeplatform.eu/images/file/SEE%20PLATFORM/CASE%20STUDY%20PDFS/SEE%20Case%20Study%20-%20Lahti%20Design%20City%20FI.pdf

In early 2014 the authorization was received from the Design Director of the City of Lahti to start drafting the plan for a three-year project called “Co-Design Bay” which aims to build both a physical and a virtual co-operation platform for co-operation based service teams within the field of industrial design. Meetings were arranged with leaders of the main design related organizations in Finland to gather together a common view of a suitable co-operation platform. The resulting plan was introduced to the board of Lahti Region Development Ltd. in May 2014 and was granted the right to apply for EU funding. The project is in pre-planning stage until December 2015 and is aimed to continue into the actual platform development phase by the beginning of 2016.
The aims of the project are in accordance with the local-, national-, and EU-wide design strategies, which will be used as guidelines throughout the platform development process.

Pictogram 11. Actors involved in developing the Finnish design ecosystem.

Networking is the most effective way to grow a design business in Finland. According to experiences of the 90's it seems to be hard to collaborate within the design community. Internationalization has brought new opportunities to design businesses in Finland.

3.1.4 Lahti as a part of the Finnish design scene

The importance of social networks for the founding and growth of entrepreneurial firms is acknowledged by many researchers (Brass et al., 2004; Greve & Salaff, 2003; Hite & Hesterly, 2001).

A design driven city

The city of Lahti is an active stakeholder in the Finnish design field. It is renowned for its excellence in design. Businesses in the Lahti region have made design their

trademark and a competitive advantage. Companies like Isku, Kemppi, Luhta and Stala have all achieved their recognition and position on the market thanks to the expertise of the local designers and listening to their users' needs.

The city of Lahti has an active role in the design field in Finland. It is the home base for a leading school for industrial design studies, the Lahti Design Institute, and has a wide array of industries that have been effectively utilizing design throughout the after-war decades. By the end of last decade, the city's regional decision makers had discovered the benefits design may bring, not only to the business sector but also to the city and it's physical surroundings (Lahti Design Strategy 2012). This lead to strong support for regional businesses and organizations running design related development projects. The Lahti Design Strategy was used as a reference for the development process of our national "Muotoile Suomi" –strategy (2013), in which Lahti was named as a national hub for developing the field of industrial design. Through these strategy processes the regional decision makers found design as a meaningful advance for the development of Lahti region's businesses, services and infrastructure. Lahti's goal now is to build up a national industrial design cluster consisting of service providers, research and development organizations and municipal organizations. The cluster will be able to respond to the growing need for outsourced and personalized design services expressed by the corporate sector in both national and international markets (Lahti Industrial Design Advisory Board –meeting presentations 2013).

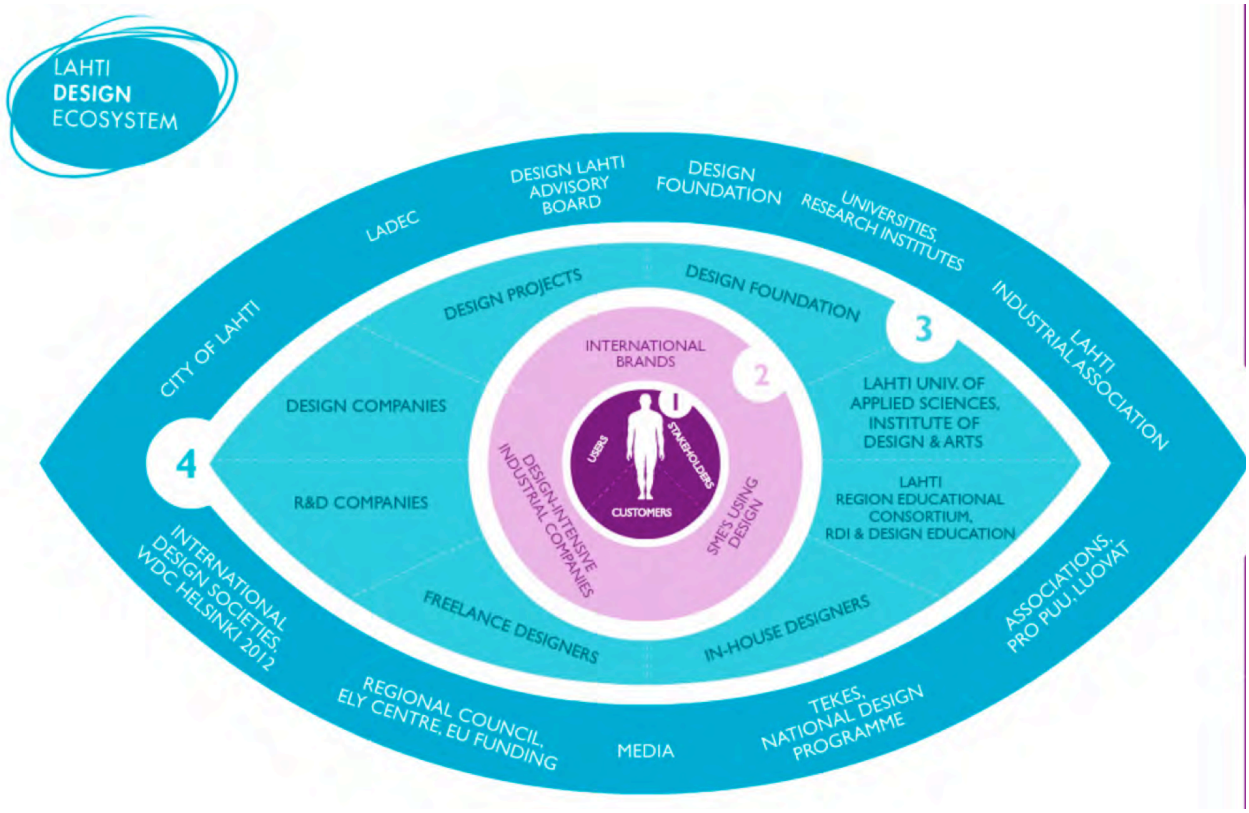
Regional decision makers in Lahti have found the benefits design may bring to the business sector, the people and the city's physical surroundings. Lahti Design Institute and the local design intensive business cluster have supported Lahti's development in various areas of industries and culture.

The deepening understanding of the significance of the design field has lead to strong support by the municipal decision makers for regional design projects and organizations. Still only lately they have started seeing design as a meaningful strategic advance for the whole region. Recent studies have shown that the various local design businesses and organizations are often rivals concerning funding and development projects. The organizations have severely overlapping goals within the cluster. This renders the support ineffective and slows down the regional design development processes.

The Lahti Design ecosystem aims to develop a "community of interaction" - a design service ecosystem, which unifies and amplifies the knowledge and capabilities of its stakeholders. The ecosystem becomes "more" through combining the forces of individuals and organizations creating and sharing knowledge.

The design service network aims to build teams for solving “wicked problems” and executing demanding innovation and development projects within societies and organizations. This demands high-level expertise, which can be summoned through combining resources and expert know-how by collaborating and co-operating across organizational borders.

http://www.seeplatform.eu/casestudies/Lahti%20Industrial%20Design%20Strategy%20to%20Benefit%20Business



Pictogram 12. The Lahti Design Ecosystem – Business perspective

- The Lahti design service network’s collaboration process aims to build networks teams to tackle demanding problems of the society and large scale corporate customers. The network teams will be gathered together to meet actual customer needs through utilizing available design experts from Finnish design service companies.

3.2 Methods - Case research within Finnish design organizations

3.2.1 My roles during the project– Vitalizing the Design Ecosystem

In 2012 I began working in Lahti as a design consultant for the Desthi –project run by the Lahti University of Applied Sciences LAMK. The project consisted of service design pilots run for municipal organizations. During the project I had the opportunity to interview several organizational leaders and design professionals regarding the services provided by the local design professionals. One of the main outcomes of the project was the concept of a virtual knowledge-sharing platform for the Lahti design ecosystem, the Design Thinking Forum (www.designthinkingforum.fi). My active role as a facilitator in the co-design workshops of the Desthi –client case service design projects lead to discussions with the by-then design director of Lahti Region Development LADEC Ltd., Riikka Salokannel who sat in the steering group of the project. The Co-Design processes and tools utilized in the Desthi -case projects were of interest to her as new means for the local design service providers to develop their skills. I was asked to join in the design team of LADEC to run a project called Co-Design Coaching.

I started as a Business Development Manager, project leader and coach in the local development company LADEC Ltd. in May 2013. During the Co-Design Coaching project I helped the key personnel of Lahti based design service businesses obtain knowledge and experience on utilizing design thinking and co-design tools in their work. Several industry case projects were run in which Co-Design tools and methods were tried out by personnel form the client organizations, stakeholders from their value chains and design teams compiled out of experts from various design firms. Long discussions were a norm during the workshops and team meetings in which the concepts of the developed tools and methods, which were the foundation of the developed collaboration platform, were evaluated. Meetings with organizational leaders within the field of design and the stakeholder regions were arranged to introduce the first concepts of a holistic collaboration platform for the Finnish Design ecosystem. The process resulted in detailed information about the needs, wishes and experience regarding the utilization of a common design service platform for the Lahti design ecosystem, but also a first concept draft of the functions of a national collaboration

platform. During year 2014 and the beginning of 2015 I finalized my work in the Co-Design Coaching project and was promoted as the Head of Development within the field of design at Lahti Region Development LADEC Ltd. I compiled the information gathered during the earlier process into a manual called "Return on Giving – Best mindset and practices for co-designing" which was co-written with AALTO University Professor Alastair Fuad-Luke and the former Design Director of Ladec Ltd. Mrs. Riikka Salokannel. Various process tools and descriptions were introduced to the public also through a developed 1.0 version of the virtual collaboration platform "Muotoilufoorumi" (www.muotoilufoorumi.fi). During the final phase of the research project I have been actively discussing the contents and structures of the developed Co-Design Bay –collaboration platform concept with different stakeholders of the regional design ecosystem in Lahti and the national design ecosystem. Co-operation agreements have been signed with the aims to apply for funding to realize a holistic collaboration platform at national level but also locally in design intensive cities in Finland.

3.2.2 Empirical Data collection: Case studies from the Lahti Region

The following projects were used to reflect the planned functionalities and collect data for the development of the design collaboration platform concepts depicted in this research:

- Desthi – Design Thinking in Municipal organizations, Lahti University of Applied Sciences, Institute of Design, 2011-2012

- Co-Design Coaching – Coaching, collaboration pilots and process development in design service SME's in the Lahti region, Lahti Region Development LADEC Ltd. 2013-2014

- Co-Design Bay -Pre Project – Project planning and concept design of a collaboration platform for the Finnish national design ecosystem, Lahti Region Development LADEC Ltd., 2014

- Several product- and service design pilot projects were studied during the mentioned development projects.

3.2.3 Collecting Data: Stakeholder Interviews

The main outcomes from the discussions with representatives of IDAB, the design organizations and the pilot –case companies were the insight on the Finnish industry corporations needs and preferences. They have been looking for strategic partners to support their development processes. Furthermore it became evident that Finnish design service providers, especially in Lahti -region are too small to provide the capacity needed by large industry corporations and design intensive SME's. During the composition process of the Lahti Design Strategy the industry representatives of the IDAB board adduced a need to enhance the capacity and capabilities of the Finnnish Design service providers to better meet the standards of their international rivals and thus to better meet the needs of their clientele.

3.2.4 Analyzing Data

The needs and aims of the Lahti Design network

Design service networks are a way for design service providers to broaden their service portfolios and enable accomplishing projects for larger enterprises. Design service network processes are fundamentally about how designers think and work together and what tools and methods they use in their common projects.

3.3 The Case Study Method - Robert Yin's formula

The case study of this research project was conducted as a mix between the Survey method and the Archival Analysis method described by Robert Yin in 2009.
The Survey method was utilized during the one-to-one discussions and interviews of the design ecosystem stakeholders. The surveys consisted of pre-assigned questions that were sent to the interviewees beforehand. The final outcomes of each interview were anyhow deemed according to the directions the discussion took. Many of the

meetings brought broad insight e.g. to the aspects of design collaboration platform development through active dialogue with the interviewee.

Archival Analysis was utilized as a tool to analyze the memos and project reports gathered from the Desthi –project which was started before the beginning of this research project.

METHOD	Form of Research Question	Requires Control of Behavioral Elements?	Focuses on Contemporary Events?
Experiment	How, Why?	Yes	Yes
Survey	Who, what, where, how many, how much?	No	Yes
Archival Analysis	Who, what, where, how many, how much?	No	Yes/No
History	How, Why?	No	No
Case Study	How, Why?	No	Yes

Table 1. Case study Methods

SOURCE: Case Study Research: Design and Methods – Fourth Edition, 2009, Robert K. Yin

4. Empirical research approach and process

4.1. Fieldwork – Data collection

A group of design and business professionals related to the studied case projects were interviewed in order to support the research and to better understand the decisions made during the processes, and the functions, strategies and goal settings of current Finnish design networks. The interviewees are stakeholders of the national design ecosystem who deal with local and national design networks in their day-to-day profession.

The case studies of this research project were conducted on-site during the pilot project meetings and workshops of the Lahti design service network. Data was gathered during discussions and interviews of the design ecosystem stakeholders. The surveys consisted of pre-assigned questions that were sent to the interviewees beforehand. Furthermore the memos and project reports gathered from the earlier Desthi –project was added to the research data. During the fieldwork process an information pool of 142 meeting- and interview memos, e-mails, project notes and other related material in text-, table- and presentation format was selected as the foundation for this research project. Most research materials are classified as confidential due to the context in which they were created; the corporate pilot-projects and the ongoing negotiations concerning the structure and future of the design ecosystem in Finland.

4.2 Structure of the research project

The project started in May 2013 with an analysis of existing design network collaboration best-practices -data. The following research process was outlined according to the roadmap of the Co-Design Coaching project that had started in January 2013 through which the first brief of a virtual information-sharing platform was compiled and distributed to the local design service network for evaluation. Furthermore the interview –phase was started without delay. The outcomes of the interviews conducted during the following year showed a clear need to update the goal setting of the platform development process, which lead to a new concept description

in early 2014. The final concept model of a holistic collaboration platform was introduced to the stakeholders of the local Lahti –design ecosystem and the key stakeholders of the national ecosystem in early 2014. Their comments were gathered and the final concept description created. During the autumn of 2014 and spring 2015 the process was analyzed; the meeting memos, e-mail exchange and project materials were collected and organized into a databank to enable the analysis for the purpose of this research project. During the summer of 2015 the project was finalized and this thesis paper released.

4.3 Analysis of the research data

The research data consists of a material bank of several hundred meeting memos, e-mails, project notes and other materials related to the research project. The material depicts the broad range of professionals involved in local and national design politics.

A vast majority of the stakeholders are key personnel from design related organizations. Only a fraction of them have a degree in design, most working with a background in either business or politics. This brings up a question: Would the situation within the field be different if designers would be more actively taking part in strategy work and decision making within the field.

The material also shows that many of the organizations in Finland have overlapping processes and aims without actual co-operation between each other. In many cases it is evident that the organizations are rivaling for the same funding resources and support. It is important to take this situation in consideration regarding the present policy work headed by the ministry of finance, aiming for a new structure within the field of design in Finland. Co-operation and collaboration with mutual strategies and a policy for information sharing will enhance the outcomes and take the scarce resources available for the field in more effective use.

The material shows that a majority of the involved design service providers are behind in terms of the new tools, processes and customer segments of the field of design. “New Design”, relating e.g. to service design, design thinking tools and business design, is a

possibility which would enable design SME:s to broaden their service portfolios through utilizing their existing design expertise with a roader clientele. The thinking and the basic structures of the new-design processes are the same as in the field traditionally, only the focuses, touchpoints and aims differ within the client organizations. Coaching and consulting should be actively provided to keep the Finnish design service networks up-to-date with the new developments of the professional field in local and global perspective.

4.4 Summary of the data collection process

The following data collection methods have been utilized during the research project:

- *Participant Observation*
    - Used throughout the project in group workshops and project meetings with individual participant organizations
- *Structured Interview*
    - Used mainly through e-mail messaging in the beginning of the project
    - Used for gathering information on best practices and user views for the concept description of the virtual information sharing platform
- *Non-directive Interview*
    - Used in the end of the DesThi- and Co-Design Coaching –projects
    - Used for gathering user views and opinions in stakeholder meetings for the evaluation of the two platform concept's evolution versions
- *Case Study Research*
    - Used for collecting information of the collaboration tools, methods and outcomes from the industry pilot projects
- Qualitative Research
    - Used as the basic method for exploring, understanding and analyzing the team procedures and information encountered and collected in all phases of the project

These methods were chosen in the beginning of the research project according to the project plan the predicted structure of the project's content and the available best practices data.

5. Key findings of the research project

Summary of the research findings from the perspective of Nonaka et al.

Nonaka's theories have been utilized in this research project as the theoretical background to rationalize the development, structure and functions of the Lahti design service collaboration platform. Most viewpoints that Nonaka gives would work as vindicators for the platform. However a trimmed theoretical focus has been selected as assimilating all viewpoints would result in an excessively broad study. As an example, presenting the four modes of knowledge creation, utilized in time perspective, through the "Spiral of Organizational Knowledge Creation" would create a systematic tool to reflect the decisions made in the design process and in developing the functionality of the virtual platform.

5.1 Results of the case studies

5.1.1 Fieldwork - Findings

The interviews during the research project show that design firms in Finland are active in utilizing virtual business and networking tools. There are several domestic and international solutions available on the markets for managing corporate projects, resources and technical data. There are several domestic and international solutions available on the markets for managing corporate projects, resources and technical data. Examples of popular virtual management and project planning solutions among Finnish design firms are the platforms provided by Visma Software Ltd., Severa PSA and AAVA Ltd. Also the planning, 3D modeling- and version management ecosystems provided by the internationally renowned D'Assault Group, and the project management and CRM platforms of Microsoft.

The mentioned platform categories have now been on the markets for almost two decades. Their active development work executed by businesses and open source groups has lead to attainable pricing and good overall stability and functionality, but it has also depleted their variation and innovation as technologically driven businesses keep a close eye on the functions and structures of each other's product- and service

lines. The platforms of the mentioned solutions providers work as good benchmarks for the development of solutions for the Finnish design service networks.

Summary of data collection

Utilizing knowledge creation and -management tools enables an informed analysis and development process for the Finnish design service network.

Based on the interviews with representatives of Finnish Design organizations, three notable changes can be identified in the market space which work as drivers for the need of larger units:

1. The amount of design intensive SME's is growing in the Finnish domestic markets. This development correlates with the demand for multidisciplinary design services. (Association for Finnish Work, Report, 2012, Finnish Association of designers Ornamo, Industry reports 2012-2015)
2. International corporations in Finland tend to acquire design services from the international markets, due to the small size and capacity of the Finnish design service providers
3. The domestic markets in Finland are too small to enable growth for design service companies. The aim has to be in the larger clients in international markets who prefer buying turnkey –processes instead of running several subcontractor contracts. This necessitates multidisciplinary services and enhanced capacity form the Finnish service providers.

The collaboration process within the Finnish design service network

As an outcome of the interviews and through participant observation the following phases can be identified as basic modes for most service providers within the within the Design Ecosystems:

1. Joining phase

a) A service provider hears about the network and takes contact to a member. The service provider is evaluated by peers and accepted to share its portfolio on

the virtual knowledge creation platform. The co-operation processes are introduced to the new member and it is invited to pilot the process in an industry project.
b) A specialized design service provider is contacted by the network in order to utilize its resources as a part of a customer project

2. Intensive phase
a) The service provider works in a project team run by a peer with best know-how on the subject of development
b) The service provider runs the process and invites suitable professionals from within other network companies to join the team.

3. Detachment phase
a) The project is finalized and the service provider starts looking for new leads to work on with its partners
b) The project is finalized and the created team starts looking for further collaboration possibilities.

Participant observation

Participant observation was used for identifying outcomes of the knowledge creation process; how the team members work together, what common processes, rituals and tools they have, what are the main differences and how to enhance the possibilities for fruitful co-operation. The outcomes of the observation were that employee factors have significant impact on the process, intensity and outcomes of the knowledge creation process. The organizations that had more experience of network collaboration were able to generate good results even together with less experienced partners in the early stages of the process. The less experienced organizations were keen to learn the new collaboration methods but due to the basic structures of the pilot –projects were

often lacking the suitable contexts for the try-outs. Many tools and processes were mostly described through case examples and theoretical descriptions.

The tool and process knowledge of the participating design service providers was strong in the context of traditional product design, brand development, interior design etc., depending of the design sector the company represented. However, most of the participants had major lacks in their knowledge of the "new design" tools and processes. This lead to the changing of the project's focus from learning collaboration tools and methods towards try-outs with the new design processes. The size of the organizations generally defined the extent of their process toolbox, with small businesses mostly concentrating on niche markets with highly developed special skills, and the larger corporations serving broad audiences with in some cases very colorful service portfolios.

The interpersonal skills of participating key personnel from the design organizations were generally good and attitudes towards collaboration were mostly positive. The anticipated problems regarding intellectual property rights and ownership of the designed solutions were evaded and minor disagreements were easily sorted. The biggest issues seemed to manifest from the dramatically differing capabilities between certain organizations. The more experienced and the larger corporations may have wanted to move forward with the processes in a more active manner, compared to the less experienced organizations with less resources. However this did not seem to drastically influence the relationships between the stakeholders during the project.

Applying the unified theory of knowledge creation to analyze the process and outcomes of the projects turned out to be a fruitful way to find development directions and to reflect the reasons behind differing views and opinions among the participant organizations. The knowledge creation process representation

helped develop insight into the studied project processes and to compile utilizable concept documents of the future development versions.

Guidelines were written down and compiled into a manual format to enable newcomers and professionals from outside of the participating networks to absorb the practices in an effective way.

5.1.2 The results in relation to Nonaka's theories

Results from applying Nonaka's theories to the information gathered suggest that, first, utilizing knowledge creation processes collectively in a network setting is more likely to lead to improvements in design services than the application of individual knowledge. Second, sourcing of external knowledge, especially from peers, partners and customers, is more productive in design business development than local and progressive knowledge creation within a service unit. Information gathering from the design ecosystem and co-operation between network partners to find and create knowledge thus support the development of knowledge intensive design services.

During the research project it came out that the ecosystem preferred physical confrontation with the virtual platform. Adding the time and space -element - tacit knowledge of the meetings to the virtual elements of the internet –platform enhanced participation and created an atmosphere of community. (Nonaka & al., Spiral – model of knowledge creation, 1995)

The project showed that to enable co-operation between the expert teams within the design service network the development resources should first of all be focused on creating the physical framework for network collaboration, which then is supported through the introduction of virtual functions. New common practices and new culture of collaboration are created through agreeing on common values, objectives and strategies. This is enabled through the formation of mutual trust as a result of positive experiences between the stakeholders during physical co-operation processes. The new collaboration and spirit of trust enhance the distribution of knowledge between stakeholders within the ecosystem, which is an essential aspect in knowledge creation.

Through applying Nonaka and his associate's SECI- and five phase knowledge creation model and the BA -model of thinking contexts the project elaborates the methods that were chosen by the Lahti Industrial Design Advisory Board (IDAB) to activate co-operation between design service providers on demanding client projects and to analyze the practicality of the steps taken to develop a virtual platform to support this collaboration.

When building co-operation between professionals in a network team settings all needed information and knowledge cannot be assumed to be available. Thus the creation, sharing and collection of new knowledge should be considered as a vital part of the team's strategy. A setting and functions for dynamic knowledge creation and management should be created through interaction between the parties and their social networks. It is important specify which partners or network contacts have the needed knowledge and to build mutual trust to enhance the distribution of it.

"Since "trust is a critical lubricant in social systems" (Arrow 1974), it would be impossible to form "synergetics" needed for knowledge creation without trust." (Nonaka et al., 2005)

Organizational design - Creating an organizational structure that facilitates the design service network's processes in the most functional and competitive way.
According to Nonaka et al. (2000) the organization's vision defines what kinds of information needs to be created in each field the organization functions in, which directions the organization's knowledge base will be developed towards and which values and norms to valuate it through. These values and norms derived from the organization's vision act as guidelines within the development processes of the organizations knowledge assets.
In order to keep up with the zeitgeist and competition an organization should be open to change and learning. A network organization with a requisite variety of processes and services is flexible and enhances the possibilities to react to and utilize change. The organization should continuously question its functions and search for new operational models, which creates a favorable basis for knowledge creation. Tolerating

fluctuation and being able to allow and control creative chaos create a productive setting that enhances the organization's possibilities to create novel and creative solutions.

The professionals and teams of an organization should be encouraged to independent generation of novel ideas and solutions and empowered to decide over the processes through which the organizational intentions are reached according to it's vision and strategy. From the expert's point of view this calls for understanding and assimilation of the corporate values and strategies. From the organization's part trust and empowering are necessitated. Love, care, trust and commitment are elements, which build a good foundation for knowledge creation and enhance communication. These feelings should be embraced within organizational settings.

Nonaka states that commitment is one of the most important components for promoting the formation of new knowledge within an organization. He introduces three factors inducing individual commitment in an organizational setting. These factors are:

1. "Intention"
2. "Autonomy" and a certain level of environmental
3. "Fluctuation."

Intention is concerned with how individuals form their approach to the world and tries to make sense of their environment. Without intention, it would be impossible to judge the value of the information or knowledge perceived or created. The "intentions" of Lahti Design is clear: For the design service providers it is to be able to provide services to larger clients with more demanding projects than each individual service provider could serve alone. The intention of the design intensive businesses is to obtain the needed design services to run their business from a local group of professionals plus be able to locally recruit specialists to run the organization's design processes. The city of Lahti and the county of Päijät- Häme are aiming for an active design driven business sector, which will provide increasing tax flow and jobs in the near future. They also want to exploit the positive visibility that high-end design may bring to the region.

According to Nonaka *autonomy* gives individuals freedom to absorb knowledge and form new knowledge. Furthermore autonomy and "minimum critical specification" (Morgan 1986) lead to more active self-organization. The Lahti design service network structure and the Design Thinking Forum platform are both built to support autonomy on organizational and individual level. Control outside of project agreements is based on the functions of a partnership with a common umbrella strategy and peer review.

Fluctuation is randomness generated from the organization and its environment. These fluctuations differ from complete disorder and are characterized by "order without recursiveness"-which represents an order where the pattern is hard to predict in the beginning (Gleick 1987). Fluctuation improves the possibility to find new ways of doing. The organizations involved in the creation of Lahti Design Cluster differ a lot from each other. The differences in their corporate cultures and processes already ensure a fluctuative environment for the individuals. Their aims are in line with each other, but the organizations form more or less a front of forces moving to a common direction side-by-side, not a single unit.

Nonaka describes mutual trust as an indispensable base for facilitating constructive "collaboration" (Schrage 1990). A key way to build mutual trust is to share one's original experience-the fundamental source of tacit knowledge. Direct understanding of other individuals relies on shared knowledge and experiences.
Nonaka also depicts theories of e.g. Concept creation, organizational management, self-organizing teams and team processes. However they are not as interesting in the context of this research project. Nonetheless his concepts of a “Middle-up-down” -organization depict the Lahti Design ecosystem very well. The co-operating SME’s in this case represent the teams and their decision makers the middle management, while the Board of Directors of the cluster represents top management. The arising organizational structure may be referred to as a "hypertext organization" with regards to Nonaka’s description and with the virtual information platform acting as the knowledge database or "Corporate University", as Nonaka describes it.

5.2 The preconception: Need for a virtual knowledge creation platform

According to discussions during meetings with leaders of design organizations in Lahti region one main reason for the division within the field is that despite the frequent design related gatherings, seminars and fair happenings, the stakeholders lack an active common ground for face-to-face discussions, streamlining and merging of design strategies and sharing common information. The interviewees suggested that instead of generating another yearly meeting or conference, a web portal equipped with networking and information sharing capabilities could be a solution for enhancing communication and coming closer to each other.

Developing a virtual information platform was seen as a necessary element to enhance the possibilities for collaboration, growth and internationalization within the design field. Based on "Design Thinking Forum" - an early concept model of a design information platform, the development project of the "Muotoilufoorumi was started in the autumn of 2013 between the Lahti Design Institute and Lahti Regional Development LADEC Ltd. The aim was to develop a web solution to enhance unification and flow of information within the local design cluster.

The first development version of the web platform was released for testing in late 2013. It consisted of an event calendar, an open chat board, a news window, a stakeholder gallery and a process and facilitation toolbox with downloadable files and descriptive case materials for the tools. The virtual platform enabled effective distribution and management of project information and related knowledge assets.

Through peer evaluation during the Co-Design Coaching –project it became evident that the virtual platform should have a broader set of tools available and that restricted user groups should be made possible to protect sensitive project information and materials. The 1.0 version of Muotoilufoorumi web platform released on the 24:th of July 2015, contains a discussion group –function for individual project teams, databases for various tools and information and a Calendar system with event marketing and ticket sales functions. Stakeholders of the Co-Design Bay are able to share tacit knowledge through technical means before, during and after their common projects and various organized meetings. Simultaneously the platform works as a medium for sharing the explicit knowledge related to the latest research, best

practices, process and case examples of Design Thinking and service design within different organizations.

Finally, according to the comments and feedback gathered during the two month testing process the virtual platform was only seen as a welcome tool to help further the common agendas agreed during the more important physical meetings between network stakeholders.

Analyzing the original virtual platform development plan from the perspective of Nonaka's knowledge creation theories highlighted the second phase of concept creation (Externalization), the third phase in which concepts are justified (Internalization) and the fifth in which knowledge is distributed as being present in the platform framework. Contents related to the first phase of sharing tacit knowledge (Socialization) and the fourth phase of archetype building (Combination) were introduced at a later stage: Facilitated face-to-face co-operation processes and coordinated network strategy work had not been considered in the early plan. Also the objectives to publish a manual for co-design and corporate co-operation processes within the design service network were later introduced.

The discussion function as the socialization medium in the Muotoilufoorumi-platform saves all topics and discussions. Thus it gives a possibility for later review of the created ideas and given information. The developed models, ideas and supporting information may be moved to the platform's databases for easier access. Thus they become explicit knowledge for the ecosystem.

5.3 The developed concept: The Co-Design Bay –platform

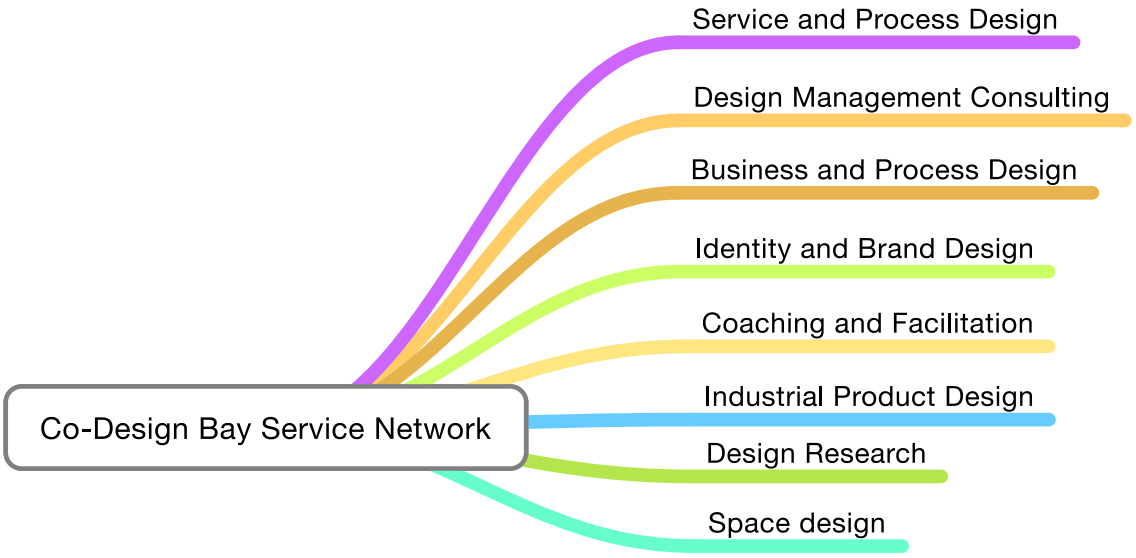
Picturing an internet portal as a solution to the sociological challenge of activating collaboration between design stakeholders can be considered as an easy way out for the rivaling organizations of the design cluster.

The Co-Design Bay –platform development process aims to bring together the experts of the Finnish design ecosystem and empowering them to create new knowledge together in an optimal setting.

Examining the original strategy and process to reflect further possibilities through Nonaka's theories also brought up the following possibilities:
The Platform in it's final form is meant to enhance the possibilities to proactively drive co-operational and organizational paradigm shifts within the Finnish Design Service ecosystem, rather than just providing a method to react locally to them. Collaboration methods should be developed to enable facilitated development processes between national level organizations. This is important as the development resources available within the field of design in Finland are becoming scarce.

Counting together the afore mentioned stakeholder feedback, the design outsourcing needs expressed in the interviews of key personnel of the local design intensive businesses and the city of Lahti's strategy to fulfill the role of a national industrial design hub, leads to the conclusion that instead of relying solely on traditional subcontracting processes enhanced with web based functions, a physical co-operation platform with supporting services and facilitation would be a more optimal solution to enhance the possibilities for co-operation within the design ecosystem in Lahti.

Finally, Co-Design Bay - the created design service network platform concept enhances organizational learning, change, and growth and views design as an organizational skill to be developed over time and in reaction to change, knowledge, and need, but also as a driver for change.



Pictogram 13. The service portfolio of the Co-Design Bay –service network

5.4 An optimized outcome: The Co-Design Finland –platform

Similar conclusions can be drawn on a national level: According to the presented research data and the evidence from stakeholders in the national design organizations, the usage of co-design processes and network based project and knowledge creation processes are rapidly increasing. Furthermore the role of designers as facilitators in research and development processes is an emerging trend. These trajectories support the concept of a physical collaboration platform as a needed step in the development of a more functional and remunerative design ecosystem in Finland. Increasing knowledge and understanding in the possibilities of collaborative methods and processes would have positive outcomes in the design industry and be an important asset for the customer driven design service teams tailored from experts of highly specialized Finnish design firms. These co-operation teams are to serve large domestic and international corporate- and public sector clients in demanding design projects that are currently unachievable due to the small size and limited resources of design firms in Finland.

(Alastair Fuad-Luke, 2011; Design ROI –Mitattavaa Muotoilua, Finnish Design Business Association, 2012; Muotoiluajattelu, Satu Miettinen et al., 2013)

Analyzing Data:

Understanding the needs and aims of Finnish Design Ecosystems

The Co-Design Coaching case project collaboration and the discussions with key stakeholders of the Lahti design ecosystem during this research project brought to the conclusion that physical meetings and in some cases supporting services and facilitation are needed to supplement the processes provided for collaboration teams through the virtual Muotoilufoorumi -platform. Collaboration processes can be effectively activated through bringing design experts together in informal gatherings and by introducing interesting national and international challenges to them.

During the research project the Lahti design ecosystem has started to work together more actively. The stakeholders have started to form collaboration teams to handle large common projects. The service network platform concept and collaboration model which were described in the Return on Giving - Co-Design manual that was released as a result of the Co-Design Coaching project will be used to introduce the created collaboration method on a national level and for the new expert teams and individuals joining the local design service network. The Lahti design service network and its collaboration model will be used to develop case scenarios and to collect best practice materials as benchmark for the national level collaboration network.

The Co-Design Finland –network service portfolio described as a guideline in the Return On Giving –Co-Design manual is based on the following Design For Industries structure concept:

1. Design Management Consulting
    a. Design Demand Mapping
    b. Design Strategy Consulting
    c. Design ROI -Analysis
2. Identity & Brand Design
3. Spatial Design
4. Industrial Product Design
5. Service & Process Design
6. Coaching & Facilitation
7. Corporate Design

8. Design Research
9. Modelling, Visualization and Prototyping

The following processes are required to ensure functional networking and knowledge exchange within a design cluster:

- Open and transparent information sharing concerning the experience, aims, connections and policies of the participating organizations and individuals
- Sharing and piloting of the tools, processes and project platforms to be used together
- Straight forward and easy to understand role allocation both inside the customer pilot-projects and in the network context

The optimal technical solutions to fulfill the requirements of these processes would be the existing Muotoilufoorumi –web platform enhanced with a project management application that would have a calendar with group allocation and reminder functionalities.

The virtual knowledge management system should be carefully planned and evaluated observing the following technical, ergonomical and social view points:

5.5 Answers to the research questions

This raises the following questions: 1. How does the given technical solution enhance the interaction between design stakeholders? 2. Would there be more efficient ways to activate the co-operation within the design field? 3. How could the possible alternative solutions be implemented in an effective way?

1) What are the reasons that lead to the developing of a holistic collaboration platform for the national design ecosystem instead of a local internet-based service?

2) What further actions does the application of Nonaka's theories highlight, which could be utilized to vitalize the Finnish design ecosystem?

3) What would be the implications of realizing development processes based on the paths highlighted by Nonaka's theories, compared to the current plan of developing a platform to enhance collaboration within the Finnish design ecosystem?

The answers the three thesis questions:

1) What are the reasons that lead to the developing of a holistic collaboration platform for the national design ecosystem instead of a local internet-based service?

The concept of a holistic collaboration platform consisting of the elements described in section XX of this project paper was combined from ideas and suggestions derived from the discussions with design professionals and industry experts during the project period. Subtle signals from the network stakeholders were actively collected through following the discourse on projects and collaboration in virtual surroundings and project meetings and seminars. The information gathered was combined into a model that was derived into an action plan and roadmap for the actual development process.
…

2) What further actions does the application of Nonaka's theories highlight, which could be utilized to vitalize the Finnish design ecosystem?
3) What would be the implications of realizing development processes based on the paths highlighted by Nonaka's theories, compared to the current plan of developing a platform to enhance collaboration within the Finnish design ecosystem?

Secondary questions answered are:
a) what kind of functions and processes support networking activities and knowledge creation within the Lahti design ecosystem?
b) How does the created virtual platform enhance interaction between design stakeholders?

c) Would there be more efficient ways to activate collaboration within the design field?
d) How could the possible alternative solutions be implemented in an effective way?

6. Conclusions

This research project draws the outlines of an information sharing and project collaboration framework, which can be utilized in the context of co-operation and customer projects of the Lahti design service network and further on as a tool in the development aiming to vitalize the Finnish Design Ecosystem.

During the project it was found out that design firms in Finland are active in utilizing virtual business and networking tools. Furthermore most firms are active users of social media and internet marketing. The challenge in networking terms is that different firms use different technical solutions to run their businesses. Compatibility was already an issue during the customer case projects of the Co-Design Coaching industry pilot projects. The other notable problem uncovered is the vast variety of programs and platforms needed to run a design SME's daily processes. Most platforms concentrate on one or only a few functions. The broader ecosystems available are mostly designed for larger corporations, thus the price for obtaining their licenses and utilizing them effectively in an SME are comparably high considering the low turnover within the field of design services (Ornamo, Industry barometer, 2014). These issues are some of the main drivers that support the idea of building a light and accessible virtual platform tailored for the Finnish design service networks.

Based on the comments given during the test period of the virtual design service provider's experiences, the following six elements of a virtual project management and knowledge creation platform are seen as essential and/or supportive for the network's collaboration:

- Stakeholder information database

- Discussion platform
- News platform
- Theory and Research database
- Tool and Process database / Case bank
- A calendar feature for announcing and marketing forthcoming events

Good visual design, usability and functionality of the platform should be emphasized to enhance user engagement.
These findings were used as a guideline for the project brief of the final virtual collaboration platform that will be serving as an active part of the developed Co-Design Finland –collaboration platform.

6.1 Research summary and main findings

Concrete results and contribution of the project

Despite the original technologically oriented viewpoints of the interviewees of this research project, as a main outcome the actual circumstances concerning the social aspects of co-operation and information flow inside the design cluster were clarified. Discussions with key stakeholders of the national ecosystem verified that the proposed holistic Co-Design Bay platform solution is in line with the aims of developing a more vital National Design Ecosystem. The project gave insight to the effective ways of enhancing co-operation between key stakeholders of the local and national design ecosystems.

The results of this research project show that the methods utilized in activating and enabling co-operation should be extended towards a holistic collaboration process and that the platform should be supplemented with physical spaces, facilitation and services. Dialogue with representatives of national design organizations and stakeholders outside the Lahti design ecosystem had a positive impact on the discourse around the subject through providing up-to-date viewpoints regarding the Lahti strategy and early models of the developed platform. This dialogue also helped to intermediate the objectives and aimed outcomes of the process to the national level.

Furthermore it assisted in turning the focus from a local perspective towards developing a more advanced co-operation process and collaboration platform that would be suitable for the extensive Finnish design service ecosystem.

6.2 Discussion: Pragmatic learnings from the project

"In the end we realized that we went to the moon, but needed the universe."

The experience gathered, beginning from the early concept of a virtual network tool created during the DesThi –project in 2012, through the try-outs of network design service processes of the Co-Design Coaching –project, and finally the holistic team work methods described in the Return on Giving –manual released during the Co-Design Bay –project, has lead to the conclusion that a virtual platform alone is not the optimal solution for the Lahti design service network to enhance collaboration between its member companies. To reach the goals of significant growth and internationalization placed in the local and national design strategies, plus the desired internationally competitive service portfolio, a holistic platform solution should be built for the Finnish design ecosystem. It should be based on a combination of the virtual platform, physical facilities and mutually acknowledged co-operation processes. These elements should be supported by a variety of process tools, contract procedures and facilitation and supporting services by stakeholders in the government and development organizations.

Physical encounters and shared experiences are needed to build trust between the stakeholders of the network, as trust is the basis for the collective knowledge creation. -- Building trust will empower the desired development.

6.4 Managerial Implications

- Objectives and Possibilities for developing the design ecosystems

The “Return on Giving” -handbook was released to streamline collaboration processes within the Finnish design service network consists of several process descriptions and instructions (Return on Giving - Best Practices of Co-Designing, Fuad-Luke et al. Lahti Region Development Ltd. 2015). Nevertheless the manual is lacking in its descriptions of the networks common value basis. Common values should be discussed and described in detail to confirm the network partner’s common understanding of what the network collaboration’s targets are. The following questions should be addressed:

- What is the network’s vision, as a mental image of what is anticipated for the organization’s future? - This could be for example becoming a national business leader within the fields it represents.

- The goals of the project and how they were met

- What is the Mission Statement of the organization? The statement should answers to the question: “What business is the company in?” - The answer from the perspective of the design service network could be for example: We are in the business of designing, and developing innovative products and services for the domestic and international markets.

- What are the organizations goals? These are the objectives that describe the concrete aimed outcomes for it’s actions in short and long term. - Achieving a goal takes the organization towards realization of its mission.

- What are the organization’s strategies, the plans for obtaining its needed resources and the utilization of them to reach its end purposes?

Common values enhance the formation of a collaborative spirit within the network that helps projects run smoother. The network’s projects utilize the organizations

resources to reach specified goals and objectives within a specified timeframe, through the implementation of its strategies and according to its mission statement.

On a national level the long distances between the cities of Finland is a challenge for the collaboration to develop in level across the design field. The main organizations within the design branch are mostly based in Helsinki. The current developments leading towards their unification into one coordination body for the design branch should be seen as a possibility to allocate resources towards activating local design ecosystems in remote parts of Finland to join in the development (Finnish Design center –meetings, Ministry of Trade and Commerce, Helsinki, 2014-15). Furthermore the outlined national coordinating body should take an active role in supporting and promoting the platform creation process and it's forthcoming services, and finally running the vision and strategy processes of the national design ecosystem. In this work the virtual part of the platform depicted in this study will be a valuable asset through which the vision and strategy can be incorporated in and set to guide the knowledge created within the active design service network.

The Lahti design service network has played an important role during the first two years of developing the national design ecosystem platform. Through their experience the stakeholders in Lahti are experts who should be utilized also in the further development process. The organization Lahti Region Development LADEC Ltd. in particular should be considered a key player with capability to plan, execute, consult and manage the further development processes, due to the ground work in designing the existing Co-Design Bay- and Co-Design Finland –platform concepts and the experience gathered within the organization through active participation in the strategy processes of the design field in Finland, and especially the pilot projects run to test and develop the platform components together with representatives from the fields of technology, design, academia and the public sector. Two other key factors with high-end design expertise in Lahti are the National Design Fund and the Lahti Institute of Arts and Design - the design unit of the Lahti University of Applied Sciences. Through counting together the resources and experience of mutual projects, within these three organizations and the Lahti design service network, a nationally significant design related development asset can be formed. Observing the shared processes the

references achieved through their active collaboration and the common strategies visioned and lead by the Industrial Design Advisory Board (IDAB) "The Lahti Model" forms a national benchmark of a local design ecosystem, which can be utilized in the development processes of the ecosystems in other Finnish cities.

The developed Co-Design Bay -model is meant to enhance co-operation and organizational paradigm shifts rather than just provide a method to react to them. Finally, the national Co-operation platform enhances organizational learning, change, and growth and it views design as an organizational skill to be developed over time and in reaction to change, new knowledge and needs.

6.5 Limitations and possible Future Research Directions of the Research project

6.5.1 Limitations of the research project in perspective of Nonaka & his associate's theories

Nonaka et al. mostly utilize large-scale international corporations, e.g. Xerox and G&E as reference organizations in their works. Despite the seemingly matching structures of Nonaka et al.'s framework to the local and national design ecosystems in Finland, the question remains: How will their theories fit into the contexts of a service network that aims for a significant role in the international industrial design markets? I examined the compatibility of the theories in this context as a part of my study.

Through concentrating mostly on Nonaka et al.'s theories as a main basis this study may not have allowed a complete coverage of all empirical articles in the field of knowledge management in networks of small and medium-sized enterprises. Yet, it is believed that the findings provide a valuable understanding of the current situation in the context of the Finnish Design Ecosystem. The study proposes a number of future research directions, which may stimulate more intensive research in this important field.

6.5.2 Gaps in the current body of knowledge

As a team's behavior is significantly affected by it's physical and social surroundings and it's level of dependence to it, the communal, institutional, cultural and organizational elements should be observed when planning a teams actions or analyzing it's results. (See: Stohl & Walker (2002, 238)

Information analysis processes and tools should be studied and developed to find suitable ways for trend and future prediction within the network platform. Up-to-date information and knowledge creation would enhance the possibilities for success by enabling right focuses and strategies.

6.5.3 Possible future research directions

In the future the developed platform concept should be evaluated first hand by the national design organizations and the industry leaders within the field of design. Further development according to experiences and feedback should be scheduled. The concept has already been introduced abroad, thus the potential collaboration partner's and user's attitudes, needs and desires in especially the strategic target countries should be studied and interviewed to help the localization process. The next stage planning of the platform should involve governmental and local funding and development services, so that when a spin-off company or project from the platform becomes ready for success in the international markets, it should have relevant funding and support services available presented by a staff that understands the processes of the platform. Through ease of use, up-to-date content and sufficient support for the internationalization processes of client organizations the platform could go to the world and for example design for the people. Through offering meaningful doing in a positive network context it will be possible to convince the industry experts to use their spare time in running themselves in for future collaboration processes – In an optimal future it could be visioned that industry leaders like IDEO would be willing to run their processes through the collaboration platform to find new contacts or for example to utilize their standing resources. The platform with its tools processes and service network will be further developed. With

right resourcing it could become the medium for Finland to relate to existing international ecosystems.

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Strong Ties as Sources of New Knowledge: How Small Firms Innovate through Bridging Capabilities

Industrial designers in industry clusters: A brief study outline (Emma Linder)

Tietojohtamisen 10 teesiä –presentaatio, Tero Kulha, Eeranka Ltd., Täsmätiedon aamupäivä -miniseminaari, Helsinki, 10.12.2014

Appendixes

[I] The DesThi (May 2010 - April 2012) – A design consulting and learning project run by Lahti Polytechnic University, Institute of Design and headed by professional designers from the city's design service network. DesThi consisted of case-projects aimed to develop from local municipal sector organization's sevice processes and -surroundings. Design thinking tools and -processes were introduced and tested with the client organization's internal development teams.

[II] **Lahti Industrial Design Advisory Board** (**IDAB**) is a regional body formed by executives from large scale industry corporations, Universities, Design service businesses, design organizations, and representatives of the city of Lahti (http://www.designlahti.fi/en/DesignLahtiAdvisoryBoard). It's main purpose is to develop and support the implementation of the Lahti Design Strategy, released in 2013. (http://www.ladec.fi/filebank/897-Lahti_Design_Strategy_2013-2015_eng_netti.pdf)

[III] A **living lab** is a research concept. A **living lab** is a user-centred, open-innovation ecosystem, often operating in a territorial context (e.g. city, agglomeration, region), integrating concurrent research and innovation processes within a public-private-people partnership.

[IV] Co-Design Coaching – A coaching project for Lahti design service network companies, that introduced co-design tools and methods, design thinking and service design to their key-stakeholders. Collaboration pilots were run with local industry and service SME:s. - Lahti Region Development LADEC Ltd. 2013-2014

[V] Meetings with the five design related organizations in Lahti region: Lahti Regional Development Ltd., Lahti Institute of Design and Fine Arts, Lahti University Consortium, Design Foundation Finland, ServiceD -project – Kkeinänen, Oct 2012 – Nov 2013

The H-index analysis of academic works on "Knowledge Creation"

[VI] The H-index analysis

Knowledge creation – Publish or Perish 3.8.2015