

Innovation systems in non-metropolitan regions

A live case journey

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Abstract

The purpose of this paper is to explore the concept of a regional development live case for knowledge sharing, building and learning; as a result a communicative model has been developed. The live case is an evolving concept in the context of a multidisciplinary research approach. A key deliverable is to provide for heterogeneous innovation work, such as idea generation for new product-service solutions, subsequently contributing to regional growth. The live case concept itself started as an abstract idea and we attempt in this paper to clarify some of its characteristics and the lessons learnt while implementing it to stimulate innovative interaction between policy, academia and trade and business.

Keywords: Innovation systems, interaction, heterogeneous, learning networks, communities of practice, live case

Acknowledgements: The authors would like to acknowledge VINNOVA for financing CiiR, a centre for inter-organizational innovation research and the research project Innovative product development for capabilities. Also, the VINNMER project Product-service innovation is acknowledged. All partners to the projects are acknowledged for invaluable discussions.

Introduction

Innovation is typically from a technical and manufacturing point of view delimited to the introduction of a new product on a consumer market (e.g. Ulrich & Eppinger 2011). Such a mental model constrains innovation activities to mainly become related to the refinement of existing goods or to the development of new, and rarely to the exploration of new markets or new services. Such an approach is risking neglecting untapped opportunities. However, also the engineering field is experiencing a change into a knowledge-based economy, where combinations of products and services provide a solution viewed in terms of capabilities provided by the manufacturer and values perceived by a user. By this the cognitive models for a product as solely a discrete and manufactured thing is challenged. Therefore, the need for more divergent competences

from different firms are introduced, hence the engineering design research field becomes more interested to participate in cross-disciplinary research to understand innovation organisation in broader terms, and how to generate ideas in heterogeneous communities in particular.

CiiR, Centre for inter-organizational Innovation Research, is one effort to bring in a diverse set of academic partners, i.e. entrepreneurship, business administration, technology management and product innovation, to interact with a diverse set of policy and regional actors. One key effort is conveyed in the intention to aid knowledge sharing, building and learning between different actors, subsequently contributing, not only to regional development and cooperation, but also to the development of new innovative modes for interaction among heterogeneous communities. Dynamic interaction where people come in and go out from the situation are recognised to bring positive effects on the innovation climate, this is in opposite to a high employee turnover in companies (Wincent & Örtqvist, 2013). Accordingly, there is a need to provide such possibilities when considering any innovation process. The main research efforts that should contribute to such collaboration are addressing the development of a learning platform in which the idea of providing a live case is at the heart. Live case was stated to be part of an explorative and experimental approach, while the learning platform was stated to draw from the possibilities to use ICT to interact with the actors. The research became even more challenging by this situation, especially viewed in the light of how to communicate and explain a live case when initially being merely an appealing thought.

Live case is a concept that occurs, yet, in various guises, in different contexts, e.g. research (as a case study), teaching (as a scenario) and engineering research (as an industrial use case or a business case). A key concern is what it could be and how to practice it to provide for knowledge sharing, building and learning in a heterogeneous community environment. Thereby, the purpose of this paper is to conduct an exploring dialogue to frame the concept of live case and make it more tangible.

It should be notated that we have made an effort to avoid using “a live case” even though it is probably grammatically more correct in some cases. We use “live case” since we find that it does not restrict our thoughts into one or the other direction, e.g. to jump into exploring a case. The live case is related to a learning platform, the paper does not account in detail for the features of such a platform. However, it will be supposed as an ICT based channel to provide possibilities for actors to access live case. Thereby, the exploration that is outlined in the paper is set into the framework of specific territorial aspects, i.e. the actors operate in a non-metropolitan region where distance matters. Different structures for collaboration, i.e. cluster, innovation system and Triple Helix are touched upon in the paper. This is done to understand the levels of abstractions for the live case concept. Further, the actors’ different motivations for contribution and distinct expectations of rewards are intrinsic in the live case concept, yet are not investigated in-depth in this study, rather used from a design perspective to develop the concept.

Methodology

CiiR provide an empirical context through which we have gained qualitative data for this study. The live case that is studied in this study has been addressed in a number of internal meetings and open seminars since the inauguration of the research centre in

2011. But also, more specific activities have provided data such as the application and evaluation of interactive methods, for example a think tank was tested with over 70 participants in an on site meeting, i.e., all people were in the same facilities. Also, the joint in-progress discussions and development of a website (www.ciir.se) to host live case and to provide a learning platform has certainly provided data for the study.

Recently, initial in-depth interviews have been conducted. These have been focusing to generate qualitative data about motives, roles and gains from a knowledge systems perspective. The respondents came from policy, research and trade and business. An interview guide was developed and applied in the interviews. The guide consists of a conversational model (a simple compass) and directs the respondents to clarify their motivation in relation to the anticipated action (the interview guide can be obtained from the authors upon request). The data from these interviews are integrated as part of the empirical analysis performed in this paper. Interview descriptions can be obtained from the authors. The generated data is rich enough to develop personas (e.g. Cooper, 2004), i.e. a description of a social role and its unique characteristics. Personas are commonly used in interaction design, but also occasionally in product design. However, they provide useful insights into users' preferences that can be applied in any type of design; from our point of view the live case is undergoing a design process for a social activity system.

The paper builds on theory and research foremost within the domains of product design and regional development. In particular the, so far, relatively few models for radical innovation and collaboration have been scanned whether or not they could provide some kind of contribution to the live case. Based on its general outline, Cross (2000) model was chosen to be adapted to exemplify a process, or more precisely a progress, view. The model is presented and related to live case in the latter part of the paper.

Seemingly, the paper continues by defining certain concepts, i.e. cluster, innovation system and Triple Helix to provide a background to the live case context. Thereafter live case is discussed in relation to case study methodology, followed by a discussion about theoretical and practical implications of live case.

Organization for collaboration

Commonly, different organizational forms for trade and business, universities and society are described as Triple Helix, clusters and/or innovation systems. Expectations on such forms are that they drive economic growth and innovation and knowledge sharing is a key ingredient. However, actors have different goals and rewards when forming and participating in such collaborative structures. Johansson, Wincent and Ylinenpää (2007) highlight that organization forms for collaboration, not only have to manage differences in terms of goal and rewards, but also have to manage the different roles. The different roles subsequently indicate that the requirements for participation are differently motivated. Johansson et al (2007) mean that critics of heterogeneous collaboration models could argue that those goals, rewards and motivations are too distinct to organize. However, the collaboration between heterogeneous actors is a key concern for innovation by inspiring, e.g., new ideas, new markets or new knowledge, people become smarter when thinking together (Surowiecki, 2005).

The concept of Triple Helix proposes that coordinated and positive spirals (i.e. helices) of knowledge sharing are enabled in the close collaboration between the three key

actors, trade & industry, university and society (Etzkowitz & Leydesdorff, 2000). An implication that contributes to how and what to share in Triple Helix is that it can take different types of collaboration. Johansson et al (2007) elaborates on four types, see Figure 1.

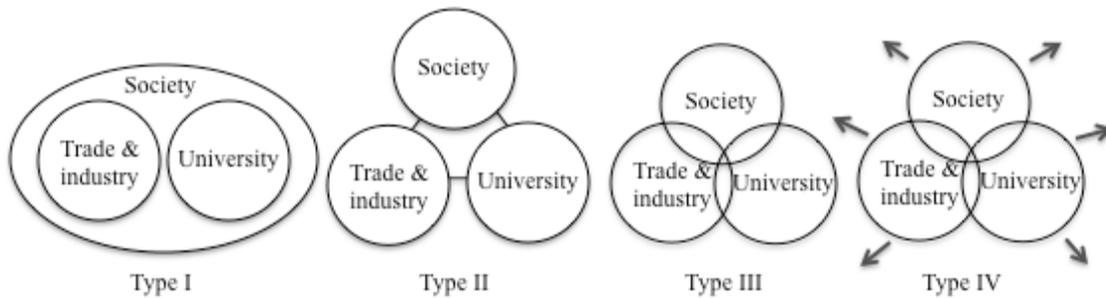


Figure 1. Types of Triple-Helix (source Johansson et al, 2007¹)

Type I describes that society is setting the rules for collaboration for universities and trade and industry. Cooperation takes place inside each area and there is no communication between those. Type II shows that the different areas have some limited interaction, and that decisions at one area may have effects on another area. Type III indicates an extensive collaboration, and the intersections symbolize profound collaboration where the actors have developed an understanding about each other's roles and motivations. Here, all actors benefits from the collaboration. Finally, Type IV, visualise that the actors have internalised the Triple Helix collaboration and regard it as a natural form of organisation. The arrows represent that the collaboration have effects on society as a whole, and all types can be seen as the development of an "optimal" form, i.e. a movement from left to right in Figure 1 (Johansson et al., 2007). Triple Helix can be interpreted as having a greater goal than each of the actors, thus it is conceivable to position such heterogeneous interaction as high level.

Clusters could be seen as a very old form of collaboration (Porter, 2000), however the diversity are strongly orientated towards a particular, joint, topic, e.g. the California Wine Cluster in USA (Porter, 2000) or the Skellefteå Wood Cluster in Northern Sweden. Porter (2000, p.15) describes clusters as:

...geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions (e.g., universities, standards agencies, trade associations) in a particular field that compete but also cooperate.

Geographic is one key element in clusters, while what constitutes the scope can differ (a region, a state, a city or just nearby). Another key element is the specific field in which the actors have shared, but importantly, also complementary resources (Porter, 2000). There are several advantages of participating in clusters, e.g., firms become more responsive to new buyer needs and can more rapidly adjust to those, but there are also disadvantages, e.g., groupthink is created that prevents openness for new ideas (Porter, 2000). The compete but also cooperate mode in clusters is by Bengtsson and

¹ Johansson et al (2007) modification based on Etzkowits, H., & Leydesdorff, L. (1997). Universities and the Global Knowledge Economy, a Triple Helix of University-Industry-Government, Pinter, London.

Kock (2000) coined the term “co-opetition”, which describes a sound way of simultaneous competition and collaboration. Clusters could emerge naturally, but it seems like, to become a vehicle for sound co-opetition the development of it should not be left to chance. Ffowcs-Williams (2004) suggests five phases (and twelve steps) for the development. These are (p. 56):

1. The establishment of support (show the relevancy, identify local clusters)
2. Make the foundation (analysis of clusters, management team formation)
3. Providing force to the cluster (develop vision and goals, identify actions and measures, make a plan of actions)
4. Widen the base (cluster launch and formalization)
5. Keep the initiative (strategic upgrading, review of the cluster process, linking of the cluster)

While clusters might appear more “tangible”, the term innovation systems offers a less concrete picture. In everyday language innovation systems is commonly explained as a network of actors who has an aligned goal (Christensen & Kempinsky, 2004), yet there exist several descriptions. For example, Lundvall (1985, p2.) provides the description that:

...a system of innovation is constituted by elements and relationships which interact in the production, diffusion and use of new, and economically useful knowledge [...] and are either located within or rooted inside the borders of a nation state.

Christensen and Kempinsky (2004) suggest that innovation systems could be seen as a theoretical concept and model, which attempts to explain how knowledge is transformed to enable the society’s innovation and competitive power. Moreover, they state the goal for the innovation system as providing regional growth, and those that could make it happen are citizens, society, universities, research institutes, higher education and trade and business. However, Christensen and Kempinsky (2004) pose the critical question if anything is gained by dwelling on finding out what is an innovation system and how other concepts relate or not relate to that. In line with them we can conclude that the concepts are complex and intertwined, but provide some idea about a multilayer perspective for live case.

Triple Helix, on one hand, is seemingly a too high-level model for live case, but the model presented in Figure 1 provides insights that live case might need to take different organizations into context. For example, what type of collaboration drives the knowledge sharing in live case? Cluster on the other hand, is seemingly a too low-level model, but triggers thoughts about what to share, when to share and with whom to share. For example, what kind of knowledge could be shared from a “closed” community to a heterogeneous one? Innovation systems, as a mental idea or explorative lens, seems to provide useful input to live case as it sets more focus on elements, relationships and knowledge. If live case is hosted on an ICT learning platform it becomes global and thus in some sense boundless, however what type of locally produced knowledge could be globally shared, and vice versa?

Case study and live case in research and teaching

A case study is often applied as a research strategy. Miles and Huberman (1994) state that the case as such can be defined “...as a *phenomenon of some sort occurring in a*

bounded context.” (p. 27). Further, they depict that the case in practice becomes the unit of analysis, and exemplify the case as being an individual or individuals, group, role, community or a nation. A quandary for researchers is to find out what the case is and isolate it from those aspects that should not be studied, i.e. it should be studied in a specified bounded context (Miles & Huberman, 1994). Several cases can be studied, but those need to be specified on beforehand. These kinds of procedure support the researcher to focus and to delimit the study to gain in-depth knowledge about the phenomenon.

A case study is described by Yin (1994) as “...an empirical inquiry that investigates a contemporary phenomenon within its real-life context...” (p. 13). It is important also in this circumstance to isolate the phenomenon, i.e., to find the edges between the real-life context that matters for the study and those that do not. However, Yin (1994) put more stress on the word “study” in his description. When talking about a case we often imply that we will conduct a study on it. So, there is a close relationship between the empirical inquiry and the phenomenon in focus, i.e. an interaction between the researcher and the case. Further, the interaction may be prospective or retrospective. A prospective interaction starts by declaring the criteria² that should be observed or in some other way investigated. As the investigation unfolds over time, new cases are brought in if they fit the settled criteria (Yin, 1994). By this, it can be concluded that prospective interaction has a forward movement. A retrospective interaction starts with the creation of criteria and cases to include in the study, which are selected from historical records (Yin, 1994). By this, it can be concluded that retrospective interaction has a backward movement.

Live case has been used for a long time in business and management education (e.g. Burns, 1990), and it is still used (e.g. Culpin & Scott, 2012). As the term indicates the case is related to, or chosen from, real-life situations. Burns (1990) makes a comparison between live case and case study, or rather, case method, which is the term that is more commonly used in teaching and pedagogics. He finds the traditional case study approach related to the normative world, i.e., how something ought to be. Burns (1990) use learning as a frame of reference and argue that case study provide an example from which established rules and principles are taught. Consequently, deductive reasoning is applied to gain knowledge about the case, and the students test the rules and principles to find out if they can be applied. Role playing is another pedagogical method that uses case descriptions, however these are more describing a realistic world, rather than being based on realism which Burns (1990) conclude is the key ingredient in live case. For example, real products, real competitors, real decision-makers and real problem are crucial for live case; thereby it becomes necessary for the students to work with representatives from an organisation or firm. Also in education, it is concluded that the case must be captured and isolated. Yet, in contrast to the traditional case study, live case inspires students’ inductive reasoning to build new rules and understanding. Also, creativity and analytical abilities are trained. However, Burns (1990) stressed that dealing with live case include frustration and that actors cannot expect to see the entire picture from start. One can find Burns’ (1990) argumentation concerning “real” somewhat troublesome, but obviously live case introduces interaction with different actors (rather than merely students).

² Note that this can be interpreted as composing the unit of analysis and thus makes the case become something different from what e.g. Miles and Huberman (1994) suggest. However, this is more a research methodological question, which can be fairly controversial. We find that further discussions do not contribute to our exploration.

From our own research we know that, manufacturing industry commonly uses “use case” and “business case”, i.e., they describe their real world as such cases. Use case is typically applied in, e.g., the design and development of computer based decision support, and thus it describes how clients use, e.g., an application or program. The use case is often visualised in a breakdown structure, e.g., the goal, a numbered list of steps, specific conditions. Business case typically starts from an envisioned business scenario, and the effort is to map potential outcomes and calculate risks. Both a use case and a business case are grounded in rational decision-making, i.e., that all information needed is known or at least can be estimated. Hence, use case and business case also have to be, not only isolated, but also prescribing retrospective approach starting from an existing knowledge base.

Action research and problem based learning need to be, at least shortly, outlined in relation to case exploration in research and education. Problem based learning (e.g. Hmelo-Silver, 2004) is a facilitated problem solving approach where it is stressed to learn by experiencing and solving a complex problem, i.e., the problem is not clearly defined and does not have a single correct answer. The approach allows learning about both content and thinking strategies. The teacher’s responsibilities and actions change from lecturing to becoming a facilitator of processes that help students build flexible knowledge, develop effective problem solving skills, become skilled in collaboration and create intrinsic motivation (Hmelo-Silver, 2004). Case, interpreted in terms of case study, is not addressed in problem based learning, rather the problem-solving processes are in focus. The initial idea of the problem to solve is commonly set as a topic or problematic situation. The settlement of the problem evolves and changes in the process. Action research is a research process in which the researchers and real world representatives intervene and contribute to the solution of a real problem, simultaneously also conducting reflection on how the problem is addressed and solved. As indicated in the concept, “actions” are addressed and the effort is to improve those, thereby isolating a “case” is not a key concern. In short, action research is described as an interactive inquiry process that seeks to bring about organizational change (e.g. Argyris et al, 1985).

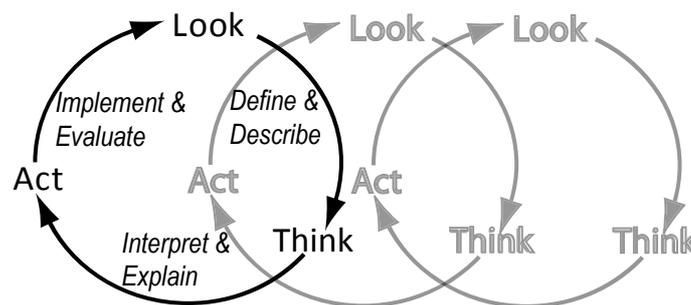


Figure 2. An action research spiral (source: Stringer, 1999).

Action research prescribes iterations (see Figure 2), in which the study gains clarity for each cycle, i.e., an incremental movement over time. Each action research interaction spiral (Stringer, 1999) prescribes the steps look (e.g., empirical data generation), think (e.g., literature review), act (e.g., collaboration with real world representatives). But also the continuous interventions from all the actors are represented by the actions: define & describe, interpret & explain and implement & evaluate (see Figure 2).

To be motivated to interact and share

One reason for forming different types of collaboration organizations is the access to additional knowledge. Asheim and Coenen (2005) highlight that the analysis of innovation systems needs a context, and they suggest that it is the actual industries in the economy that should provide the context. A reason for this is that the companies' innovation processes are shaped by their specific knowledge base. However, this might indicate a barrier for cross-boundary solutions in regions that are built upon and traditionally focuses on one type of industry, and could have an affect on the intentions to create live case possibilities for heterogeneous communities. Asheim and Coenen (2005) have distinguished between two types of knowledge bases, one analytical and one synthetic from which different innovation processes originate (see Table 1). The distinction between tacit and explicit knowledge, which is made known in the work of Nonaka and his colleagues (e.g. Nonaka, 1991), is mixed in the two categories. Tacit knowledge is often considered to be locally produced and have dimensions that is difficult to articulate, while explicit knowledge can be codified and made accessible in, for example established procedures or rules of thumb. Looking into the division in Table 1, live case might need to address, or bridge, both types of knowledge bases.

Table 1. Synthetic vs. analytic knowledge base (source: Asheim & Gertler, 2005)

Synthetic	Analytic
Innovation by application or novel combination of existing knowledge	Innovation by creation of new knowledge
Importance of applied, problem related knowledge (engineering) often through inductive processes	Importance of scientific knowledge often based on deductive processes and formal models
Interactive learning with clients and suppliers	Research collaboration between firms (R&D department) and research organisations
Dominance of tacit knowledge due to more concrete know-how, craft and practical skill	Dominance of codified knowledge due to documentation in patents and publications
Mainly incremental innovation	More radical innovation

In parallel, there are different tendencies among people that motivate their actions when searching, internalizing and applying knowledge. For example, students' learning preferences could be divided into the categories of mastery and performance oriented types (Pintrich, Marx & Boyle, 1993). The mastery type of orientation has a tendency to explore problematical situations to learn in more depth, and the performance type of orientation has a tendency to exploit existing knowledge on a preferable known situation (Pintrich, Marx & Boyle, 1993). Most important is that the types of orientation have nothing to do with a judgement of good or bad, but both brings value in relation to specific situations. It should be noted that it might be interpreted that Pintrich, Marx and Boyle (1993) argue that a person's orientation is fixed, but it is not, rather the type of orientation prescribes a tendency for how to approach ambiguous situations or open-ended questions. This means that, e.g. becoming experienced have an effect on type of orientation. Bluntly, depending on the situation, some people find it beneficial to address knowledge outside the obvious boundaries of a situation, and some people consider it as deviating from the subject, or even waste of time. Live case is intended to provide possibilities for different types of actors, e.g., beginners in an area as well as experts. This brings in issues that relates to the different tendencies. A core issue for live case is thus how to support these two types of knowledge sharing approaches.

What could be a CiiR type of live case?

A vital objective for implementing live case as a viable resource in CiiR is that it could represent a working model for collaboration between heterogeneous teams (academia and external actors) representing diversity in terms of interests and expectations. The live case has been described as having the potential to develop new applied knowledge, and we have to admit in hindsight that it is quite sketchily described as qualitative studies of actual cases in the project plan. The idea of live case has thus evolved in the formal and informal meetings with policy and other representatives affiliated to CiiR, by this it could be concluded to represent an actual need. And, as such, a result itself of the action research that has been and is conducted within the centre.

Drawing from our exploration in this paper, the term “case” could be set to, e.g. a problematic situation, an expressed need statement of any kind or even a provocative question. By this, it describes an isolated phenomenon, however the intentions to intervene with it make it “live” and the intentions to “study” the initial case are not in focus. Yet, the different outcomes from the intervention, i.e., cases as in case study will be interesting for further investigation. In this idea, the mix of action research and problem based learning is evident. In Figure 3, the upper right part visualise that traditional case studies can sprung out of live case interventions, also we find that case studies in comparison with our idea of live case prescribes a more retrospective approach. One important activity for identifying a case in a case study is to isolate it from its context, i.e. create appropriate boundaries. The lower left part in Figure 3, describes live case.

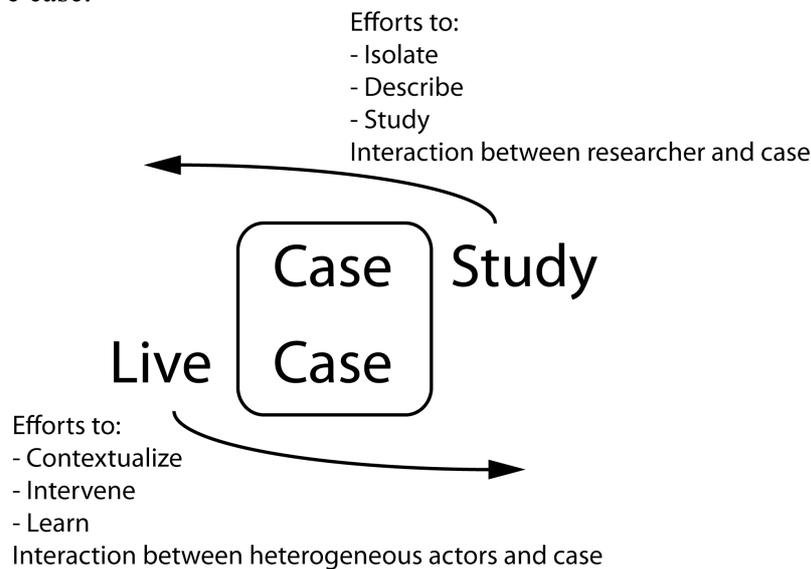


Figure 3. A communication model of live case.

The starting position for live case can be from the very same case description that is used in case study. However, as the “live” activities starts, the case also evolves and changes when people start to intervene with it, similar to an action research approach (Brydon-Miller, Greenwood & Maguire, 2003). The core idea of “live” is to make the different actors intervene and elaborate on the case, and thus to contextualize it into their own settings and make it their own, i.e. a new relevant case. As such, also the knowledge gained from the intervention is both internalized and contextualized in a new setting. One expected benefit from this type of interaction and intervention is that

the heterogeneous perspectives could support the definition of an actual problem, and by this create a starting position for the creative problem solving processes. One expectation from this is that the actors provide insights that contribute to seeing different views of a problem, i.e. a case. As such, one actor can possess knowledge that another one lacks, and in an ideal scenario knowledge sharing is a fact.

Letting “loose” a heterogeneous group of people and just ask them to do something with a live case seems not enough. Work on how to support the communication in heterogeneous groups has shown that people tend to approach the problem differently, thus making a “stew” of e.g. facts, feelings, thoughts and speculations (de Bono, 1979). If not guided in some way, the collaboration becomes a random execution in a high degree based on negative criticism (de Bono, 1979). De Bono suggests the use of his six thinking hats to make people look in the same direction, e.g. having the red hat on when talking makes everyone aware of that it is feelings that are expressed. Yet, also having some predefined overall guiding steps for how to proceed is important, for example to communicate about current state and actions, as well as the subsequent steps (Engwall, 2003). Hence, a process model is needed to provide a possibility to make a reference to a larger picture, e.g., where do we start and when can we consider the task done. Cross (2000) suggests a simplified model of a process for the investigation of innovative solutions. The (modified) steps are:

- Explore
- Generate
- Evaluate
- Communicate

There are more details in Cross (2000) suggestion and of course those are dealing with problem setting and problem solving of a new product. Using the word product is not useful for live case, but rather it could start from exploring the case as a problem area, i.e. clarifying real needs and requirements. Thereby, dealing with the formulation of the problem statement, or rather reformulation of the case, simultaneously also building up an interest to intervene with it.

Who would interact with a CiiR type of live case?

The ideal scenario would be that only by providing a live case model real actions happens, but this is far from what can be expected. If we see the development of live case as product, there is a need to better understand its potential users. Typically personas (e.g. Cooper, 2004) are used to visualise and personalise users by providing personal stories about the character. From the relatively few interviews with potential stakeholders to the live case, we have developed three personas describing specific characteristics and traits. The three personas are:

- *Christina*, 40 years, works as an administrative officer at a public authority for regional development. She has been working for 10 years and is confident in work, but still enjoys the challenges put on her role. She has contacts with politicians and researchers and when she has the opportunity to do so she values contacts with regional firms. She sets her mission to see the “whole picture”, and acts often as a “knowledge broker” when she contribute with her experiences to refine the regional “map” for the benefit of others. She has a strong belief in strengthen, or empowering colleagues and regional actors. She

seeks diversification among peers since she has the experience that resources should be collected from a variety of sources, rather from one type. Part of her working tasks is to initiate programmes or similar for the purpose to sustain regional development, this mean that she generates ideas while also having to communicate, package and sell them internally to make management allocate resources for the realization. Other work tasks are, e.g., to participate in project hearings, project counselling and decisions for research funding. Christina is experiencing quick changes in her context, and put an effort to obtain new information and continuously learn anew. In her work she prefers to meet people in face-to-face meeting, but uses social media. She has recently started to use Twitter to provide more transparency about his work.

- *Marcus*, 45 years, works as a researcher at a university. His research interests are innovative work and knowledge sharing. Researching, learning, reading, writing and teaching are his main work tasks. He has an educational background as a mechanical engineer, with a master in innovative technology and entrepreneurship. The mix of competences is appreciated in the applied research field in which he is acting. All research projects that he is leading have companies affiliated to it, thereby he has to manage not only research activities but also perform the balancing act of being almost a consultant. The companies have high expectations on his research to be practically and readily implementable, while the research community puts other expectations on his work. He finds those expectations opposing, and he struggles every day to find a balance between them. The interaction with companies is mainly done by using telephone meetings, distributed meeting technology and email, but also some of the companies offers access to their internal web portals to support the communication. He prefers face-to-face meeting with the companies representatives, but all companies are locate on distance from the university, which makes it impossible to realize. He believes in close collaboration and therefore has to use distributed technology, yet he experiences many drawbacks from doing so. The university world offers, or rather prescribes, the use of a diverse set of ICT and Internet based tools.
- *Karl*, 72 years, retired, has had an own company in the construction business as a haulage contractor. He has always had, and still has, a passion in identifying day-to-day problematical situations and tinkering with solutions that would improve the daily life for other people. But, also he has found new solutions within his previous work life. He has several patents, and has had several successful products launched at the commercial market. He collaborates with other similar people in his innovation activities, and finds it both necessary and joyful. Typically, he is the one that comes up with ideas and make a small-scale functional prototype to learn more about the solution, but also used to communicate the idea with other persons from his extensive network. It is important for him that the inventions will bring benefits for someone, thus a key activity for him is to make other people interested in his ideas in order to allocate their resources in his venture. He commonly uses resources like governmental advisory and funding organisations. He is part of an inventors cluster in which he shares his experiences and expertise, sometimes even his ideas because he believes that it is better to share than to protect in order for

something to happen. Karl never uses ICT or computers at all; he meets people in real life and uses his phone.

The three personas exemplifies that there are certainly different expectations and rewards when collaborating. Also, they provide some indications of the different settings of collaboration organisation, e.g. Karl who need more direct support from a cluster and Christina who is more directly an initiator of a regional innovation system.

Implications for live case and future research

The live case has here been presented as a communication model to capture generic characteristics of real efforts to sustain knowledge sharing, building and learning for heterogeneous communities and in that way support regional development. The exploration has shown that live case show similarities with both research and teaching methods, and the communication model are hence derived from those. Live case has been complemented with a simplified and modified product development model since the interaction and collaboration among heterogeneous groups need guidance for progress.

There are high expectations on ICT as a channel for dissemination and realisation of a learning platform, in which live case provide contents. But, the development of personas as presented in this paper, indicates two issues. First, the idea of only using ICT is not applicable if the goal is to reach all sorts of actors and diversified knowledge bases. Most people commonly appreciate a face-to-face meeting, or at least talking to people, such vivid communication is not readily transferable to a learning platform, for example hosted on a website. One implication for live case is thus that it as such, but only partly, rests upon the idea of a digital innovation. It might be necessary to consider additional channels too, e.g. meetings workshops or creative methods. However, the fact of geographical distance and that ICT diminishes such barriers, makes the effort to find ways to make live case a distributed tool important. Thereby, overcoming the barriers of ICT interactions and contribution are vital to realise such a learning platform. As a start, the live case model seems to provide an adequate position for finding the contents to convey.

At first, live case, was tested on the development of a new industry led by the organization Spaceport Sweden (www.spaceportsweden.com) which is an organisation for commercial human space flights. The vast advantage was that it provided, not only a unique opportunity to follow the birth of a new industry geographically located in the middle of a non-metropolitan region, but also that the company could be open about their activities. There is no competition yet in the area so openness is more a strategy to gain additional knowledge. Also, the organisation has articulated a clear intention to become a key actor in a regional innovation system for space. This advantage has also shown some implications for making the organisation as the main input in live case, for example there is no established cluster and the innovation systems is still in such an early state that it becomes difficult to identify. However, as one input among several others the intriguing situation of a new industry is an invaluable source for learning and knowledge sharing.

Since this is an explorative paper and it has outlined our journey to investigate live case, there is previous research within the specific field of entrepreneurship that we have not considered. For example, the extensive studies on roles in innovation systems

could be used to extract special traits that typify each role in more depth. This might contribute to a greater variety of personas, which could guide improvement of live case.

The different incentives for actors' contributions might be embedded in their expectations of rewards. Investigating the "what's in it for me" statements in-depth could become a valuable input to the appearance of live case channel. A crucial aspect for live case is that the stakeholders actually contribute to the contents of it in order to make it related to their own needs. Thus finding answers on the question how actors are inspired to contribute to heterogeneous communities is a key concern. Thus, not only the actors' motivation but also their actual expectations on rewards have to be identified and aligned to live case. Finally, implicitly in the exploration in this paper we have noticed that any interaction and intervention of live case seem to insist on facilitation to support influences from the users. How should such facilitation look like? Are interactions and interventions with live case the source for making it "alive"?

References

- Argyris, C. & Schon, D. (1978). *Organizational Learning: A theory of action perspective*, Reading MA, Addison-Wesley.
- Argyris, C., Putnam, R. & Smith, D. (1985). *Action Science: Concepts, methods and skills for research and intervention*, Jossey-Bass, San Francisco.
- Asheim, B. T. & Coenen, L. (2005). Knowledge bases and regional innovation systems: Comparing Nordic clusters. *Research Policy*. V.34: 1173-1190.
- Asheim, B.T. & Gertler, M.S. (2005). "The geography of innovation: regional innovation systems", in Fagerberg, J., Mowery, D. & Nelson, R. (ed.) *The Oxford Handbook of Innovation*. Oxford University Press, Oxford: 291-317.
- Bengtsson, M. & Kock, S. (2000). "Coopetition" in Business Networks – to Cooperate and Compete Simultaneously. *Industrial Marketing Management*. V.29, (5): 411-426.
- de Bono, E. (1979). *Lateral thinking: a textbook of creativity*. Penguin books, Harmondsworth.
- Brydon-Miller, M., Greenwood, D. & Maguire, P. (2003). Why action research? *Action research*, 1(1): 9-28.
- Burns, A.C (1990). "The use of live case studies in business education: pros, cons, and guidelines", in Gentry, J.W (ed.), *Guide to business gaming and experiential learning*. Nichols/GP Publishing: 201-215.
- Centre for Inter-organisational Innovation Research - CiiR. Available at: www.ciiir.se
Extracted on 2013-04-30.
- Christensen, L. & Kempinsky, P. (2004). "Visione i praktiken", in Christensen, L. & Kempinsky, P. (ed.), *Att mobilisera för regional tillväxt: regional utvecklingsprocesser, kluster och innovationssystem* (in Swedish), Studentlitteratur, Lund, Sweden: 13-39.

- Cooper, A. (2004). *The inmates are running the asylum: why high-tech products drive us crazy and how to restore the sanity*, Sams Publishing, USA.
- Cross, N. (2000). *Engineering Design Methods: Strategies for Product Design*. 3d ed. John Wiley & Sons
- Culpin, V. & Scott, H. (2012). The effectiveness of a live case study approach: increasing knowledge and understanding of 'hard' versus 'soft' skills in executive education. *Management Learning*. V.43: 565-577.
- Engwall, M. (2003). Mysteriet med den orimliga modellen: om utvecklingsmodeller, kunskap och kontroll. *Nordiske Organisationsstudier*. V.5, (4): 28-53.
- Etzkowitz, H. & Leydesdorff, L. (2000). The dynamics of innovation: from National Systems and Mode 2 to a Triple Helix of university–industry–government relations, *Research Policy*. V.29, (2): 109–129.
- Ffowcs-Williams, I. (2004). "Klusterutveckling: fem faser, tolv steg", in Christensen, L. & Kempinsky, P. (ed.), *Att mobilisera för regional tillväxt: regional utvecklingsprocesser, kluster och innovationssystem* (in Swedish), Studentlitteratur, Lund, Sweden: 55-69.
- Hmelo-Silver, C.E. (2004). Problem-based learning: what and how do students learn? *Educational Psychology Review*. V.16, (3): 235-266.
- Johansson, J., Wincent, J. & Ylinenpää, H. (2007). "Triple-Helix - konceptet som funktionell modell eller retorisk återvändsgränd? - en analys av rollförväntningar i ProcessIT Innovations", in Laestadius, S., Nuur, C., Ylinenpää, H. (ed.), *Regional växtkraft i en global ekonomi: det svenska Vinnväxtprogrammet* (in Swedish), Santéus Academic Press Sweden, Stockholm, Sweden: 77-98.
- Lundvall, B-Å. (1985). Product innovation and user-producer interaction, industrial development, *Research Series*. V.31, Aalborg: Aalborg University Press.
- Miles, M.B. & Huberman, A.M. (1994). *An Expanded Sourcebook. Qualitative Data Analysis*, 2:nd edition, Sage Publications, USA.
- Nonaka, I. (1991). The knowledge-creating company, *Harvard Business Review*, November-December: 96-104
- Pintrich, P., Marx, R. & Boyle, R. (1993). Beyond cold conceptual change: The role of motivational beliefs and classroom contextual factors in the process of conceptual change. *Review of Educational research*. V.63, (1): 167-199.
- Porter, M. E. (2000). Location, Competition and Economic Development: Local Clusters in Global Economy. *Economic Development Quarterly*. V.14, (1): 15-34.
- Spaceport Sweden. Available at: www.spaceportsweden.com Extracted on 2013-04-30.

- Stringer, E.T. (1999). *Action Research*, 2nd edition, Sage Publications, USA.
- Surowiecki, J. (2005). *The Wisdom of Crowds*. Anchor Books. New York, USA.
- Ulrich, K.T. & Eppinger, S.D. (2011). *Product design and development*, Fifth edition, McGraw Hill, USA.
- Wincent, J. & Örtqvist, D. (2013). Membership turnover in large multi-partner alliances: A longitudinal study of consequences for innovation and funding. *The 16th Uddevalla Symposium*. Kansas City, USA.
- Yin, R.K (1994). *Case Study Research: Design and Methods*, SAGE Publications. California, US.