Research planning – assignment 3

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Abstract: Experience from research and literature show that many SMEs want to be more innovative. There are already plenty of innovation models that explain “what to do” and “why to do”. However, there seems to be a lack of innovation models that show SMEs “how to” do the actual work. This research is about to develop and verify an innovation model suited for SMEs, as a result of the three year project “Wings of Innovation”.

Keywords: SME; innovation; innovation management; innovation model; Wings of Innovation

1 Introduction

My interest for innovation started several years ago and my research question was “How do innovators know there’s a marked need?”. The aim was to find out how private innovators know what to put their effort, enthusiasm and economical resources in. The answer was that they didn’t know, but four key actors were identified from private innovators: Idea owner, User/End consumer, Supplier and Distributor (Key actors). A greater survey about the same topic resulted in an innovation model named “The Raft model” which could be classified as an “How to do”-based innovation model. The Raft model has been tested in practice and used at innovation advising by the author at ALMI Företagspartner and Munktell Science Park since 2007. The Raft model was published and released in 2009, the first paper about the Raft model will be presented in Korea at IASP conference in May 2010.

From my experience as innovator and finding customers for my innovations, I found out that companies were surprised that I could present new solutions to the company though I wasn’t in the business myself. The companies I met had their own Research and Development (R&D) but didn’t see what I did. I was surprised and felt that there was a lack of knowledge in how to find opportunities to new products and services among the companies I met. My interest for identifying the Key actors at the companies I met started though I saw similarity to the Raft model.

Firms that are innovative are proved to be more successful than non-innovative ones and outperform those both in terms of growth and financial performance. That is a fact that forces SMEs to be repeatedly innovative to maintain their competitive edge in an increasingly globalized and competitive market.

Experience from the industry indicates a low strategic consciousness in SMEs innovation management. Moreover, experience does also suggest that a significant proportion of SMEs show a lack of holistic view in their innovation effort. Even globally successful companies at the technological

2 The Raft model’s name comes from the extreme sport “River rafting” that could be explained as “A hell of a ride but great fun”.
(English translation of title “Sell the skin before the bear is shot”)
edge seem to have a tendency to focus only on technology-based innovations and thus miss competitive advantages that a broader approach to innovation would give.  

Wings of innovation is a three year research project that aims to support the knowledge base on how to build innovative behavior and capabilities in industrial SMEs and to strengthen SMEs innovative capability as well as a long-term development of the participating companies’ innovation capability. The main objective with the project is to contribute to Increased Overall Innovation Capability (IOIC) of SMEs. Research goal is to develop a supporting frame model that focus on how innovation management can contribute to innovation maturity growth by Strategic Innovation Management (SIM).

2 Scope
The specific scope of the research is to analyze relations between the Key actors connected to the participating SME within the project Wings of Innovation. The aim is to develop and verify a suited innovation model, easy adjusted for SMEs in general.

3 Research question
The research question is; How do the identified Key actors in the Raft model; Idea owner, User/End customer, Supplier and Distributor impact the innovation process for a SME? 
A sub question follows as; How would a new innovation model, based on the research question, look like in order to become an “How to do”- innovation model suited for a SME?

4 Definitions and guidelines
SME – Small and Medium sized Enterprise. A company between 10-250 employees with a turnover of maximum 50 billion Euros.
Invention – A technical solution that might be patented but there is not a guarantee to reach the market.
Innovation – A new product or service that have reached the market it was mend for. It could be a product, a service, a design, a process, a model etcetera that is a solution of an identified problem.

It is preferable that the reader of this research planning is comfortable in understanding that the term, and related terms to, “innovation” in this research planning is not about product development in a technical way. Innovation in this research is about management and mindset of “how to” manage innovation by individuals within an organisation. This research planning is written with purpose to give me, Mikael Johnsson, a guideline in the next coming years of research as a part of the course Research Planning 2010, given by Hans Hansson at Mälardalens University in Västerås.

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6 Wings of Innovation, project plan
7 SME - Wikipedia, 2010-05-16
8 Invention – Wikipedia, 2010-05-16
9 Innovation – Wikipedia, 2010-05-16
5 Theory
This section will show the main theories for the research area and for the project Wings of Innovation. How the theories are connecting to each other are discussed at section “Method”.

The Raft model (Johnsson, M.)
The RAFT model, which is the main theory for the research, will be explained in detail below though it is central during the research at SME. The Raft model is based on four different Key actors who must cooperate in order to get a sustainable innovation structure. This includes Idea owner, User/End Customer, Supplier and Distributor.

Idea owner: As discussed above the Idea owner is often a private person who has discovered an opportunity to develop a product or service to be launched into the market. User/End Customer: The User is a person who is going to use the future developed product or service, which could be a private or employed person. The End Customer is a private person or a person at a company who will pay money for the product or service to solve the discovered need. This person can also be a User, it is important to make a differ between these two types.
Supplier: The Supplier is, most often, one or several companies who could provide the needed components or knowledge to put the idea together into a solution who can be accepted by The User/End Customer.
Distributor: The Distributor is one or several companies in the value chain who will provide User/End Customers with the developed product or service. (Johnsson, 2009)
How to use the RAFT model.

Previous experience shows that many Idea owners do a fatal mistake when they first develop the idea with no or minor influence from Users/End Customer and then try to launch the product or service into the market. The reason for this behavior is that Idea owners often frightens to discuss their idea with unknown people or companies who can help to evaluate or develop the idea. The RAFT model, on the other hand, is based on the opposite way. The Idea owner should not totally focus on developing the idea until he/she have discovered what the User/End Customer thinks about the problem in mind. The information from The Users/End Customer are extremely important and with the right questions asked the Idea owner can actually develop the idea suitable for all the key actors, including Suppliers and Distributors. Ideas that have been developed according to the RAFT model shows that the key actors will find an idea interesting and attractive as long as the Idea owner is engaged and act as an Innovation manager until the key actors have found each other. (Johnsson, 2009)

The Idea owner seeks and finds the Users/End Customers and find out what they think about the problem/situation in mind. Depending on situation, the Idea owner do interviews or observations to find out demands and wishes about a new product or service.

From the gathered information the Idea owner can find out the most important needs that has to be fulfilled in the future developed product or service. Service providers are located to help develop the product or service. In some cases the Idea owners do some or all parts by themselves, sometimes not. The most important issue is to know that everything can be solved. Next step is to test prototypes or concepts to the User/End Customer and to get feedback, modify and test again. Do not try to solve every problem that appears, keep some news to future products in the product lifecycle. Get to the market as soon as possible.

Depending on what the Idea owner wants to do with the idea, be a part in the value chain or get income from a licence agreement there are several options. However, a sustainable innovation structure is reached when every key actor find the idea attractive in their own business mind. There’s a good chance for the idea to reach the market when the Idea owner can answer the key question; “What’s in it for me”? 
Managing innovation (Tidd, J., and Bessant, J.)

The innovation process below is a well researched and established innovation process and is the main theory during the research project Wings of Innovation.

![Simplified model of the innovation process, Tidd & Bessant 2009](image)

The figure above show four phases for which the innovation process is divided. Depending of the companies innovation strategy the work inside every phase is different. A short summary of the phases is made below.

**Search** is about how to manage the organization to be open minded to new impression and how to transform these impressions to business opportunities. It is also about awareness in where to search and the triggers to the innovation process.

**Select** is about choosing product portfolio and how to choose innovation method for different types of inventions. It is also about knowing that innovation is decision making under uncertain circumstances. What criteria are needed to be fulfilled and how to build an innovation plan.

**Implement** is about transforming the ideas into reality, how to segment the market and customers. It is also about creating ventures inside or outside the main organization.

**Capture** is about receiving value from the efforts of innovation, how to plan for intellectual properties. It is also about the learning process so we can make it even better next time.
6 Hypotheses

The initial hypothesis is based on the Raft model, which means that an active and balanced collaboration between the SME and the Key actors Idea owner, User/End consumer, Supplier and Distributor is vital in order to enable sustainable innovation structures.

**SME (Idea owner):** The Idea owner in this context is a SME who wants to, or has discovered an opportunity to develop a product or service to be launched into the market. The different from the Raft model is that a SME most often has greater resources to develop an idea. Another benefit is that they already have marketing channels to work thorough, if they like to.

**User/End Customer:** This field is the same as for the Raft model. The User is a person who is going to use the future developed product or service, which could be a private or employed person. The End Customer is a private person or a person at a company who will pay money for the product or service to solve the discovered need. This person can also be a User, it is important to make a differ between these two types.

**Supplier:** The Supplier is, in the Raft-SME model, one or several companies who could provide the needed components or knowledge to put the idea together into a solution who can be accepted by The User/End Customer. One of The Suppliers could be the SME itself, which can supply special knowledge or components to a product or service. A department within a SME could also be a Supplier according to the Raft-SME model.

**Distributor:** The Distributor is one or several companies in the value chain who will provide User/End Customers with the developed product or service. One of The Distributors will be the SME itself, which supply special knowledge or components to a customer in the value chain.

![Four phases in the generic innovation process (Tidd & Bessant, 2009)](image)

**Figure 3.** The four Key actors engaged in the four phases within innovation.

In Figure 3, where the four Key actor cut through the four phases in the innovation process described by Tidd and Bessant (2009).
7 Method

Wings of Innovation (WOI) is the platform from which the research will be done. The purpose with WOI, as presented, is to build a sustainable innovation management at the participating SMEs. Wings of innovation are a research project that stretches over three years. Aims of the project are to support the knowledge base on how to build innovative behavior and capabilities in industrial SMEs and to strengthen SMEs innovative capability as well as a long-term development of the participating companies’ innovation capability.

A consortium have been formed under the project, consisting: Mälardalens University, Munktell Science Park, the three companies Eskilstuna Elektronik Partner AB, Calix AB and Helekopter AB as a representative for a additional two companies that will enter the project during 2011-2012

The project will focus on “how we do” – move “what we do” to project paragraph and the project work will run on three levels. Initially on a company level, where the team together with the companies work with development and innovation processes, secondly on a project level, where the team supports companies in singular development projects and finally on a system level where experiences and knowledge is transferred within the consortium.

![Figure 4: Illustrating the three levels within Wings of Innovation.](image)

Two groups of SMEs are planned to participate in the project. Both those groups will go through an 18-month action research cycle. Each research cycle will contain research activities directed to individuals from respective SME, groups of individuals from each participating SME and groups of people from all participating SMEs. The first group of SMEs is active in the project from 2010, the second group enters the project a year later. This gives the researcher the opportunity to develop and refine methods during the project.

**Action research and collaboration**

Methodologically, the project will strongly be characterized by relatively high degree of action research. The element of action research will increase during the project as a result of scientists’ expanding invention in participating SMEs innovation activities and innovation projects during the research cycle.

The research work will be characterized by a focus on research in action, more than research on action, meaning that we will work together with intermediaries and company management on innovation challenges. The research will have a cyclic approach where research findings and
company improvements are gradually improved throughout an iterative cycle.

The project approach will be highly collaborative with several actors such as researchers from Munktell Science Park, Mälardalens University and company employees. These aspects create a knowledge development combining theory and practice.

Audits and interviews
At the initial stages of the research cycle research data is collected through an innovation audit, which is followed up with a detailed interview. The audit used is developed by established researchers (Tidd & Bessant, 2009) and based upon five areas of innovation critical factors. The audit gives a picture of the current innovation status and will be used as a basis for discussion and interviews. Every audit is followed up with a semi structured interview based on the same questions as in the audit but addressed from a “how” perspective.

The innovation process is cut into four phases which will be introduced to the participating SME as seminars and questioners by interviews and discussions.

Four phases in the generic innovation process (Tidd & Bessant, 2009)

<table>
<thead>
<tr>
<th>Search</th>
<th>Select</th>
<th>Implement</th>
<th>Capture</th>
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<tbody>
<tr>
<td>Idea owner</td>
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<td>Supplier</td>
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<td>Distributor</td>
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<td>User</td>
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In Figure 1, where the four functions cut through the four phases in the innovation process described by Tidd and Bessant (2009).

The research method will have an active character with an objective to identify the relations between the Key actors and based upon those present normative findings on how the capability can be increased in SMEs to realize innovations.

The general research area is how SMEs relate to the four key actors during the different phases of innovation, with tentative areas for research:

**Idea owner:** Ideas of renewal at SMEs can in principle be identified everywhere and by all employees. Interesting is to investigate how the perspective of ubiquitous idea potential and information, can be translated to an innovation system where it is everyone’s responsibility to actively pursue more or less
radical ideas. How can innovation be a part of the day-to-day work also for the ones not working at the R&D department?

**User/End consumer:** Experience from research and practice indicate that companies have a tendency to focus on customer initiated development. Much effort is spent on product development but less effort on renewing through innovation. Previous studies show the need of incorporating the user in real innovative development in order to ensure market penetration (e.g. von Hippel, 2005). How are the users’ behavior captured in the SMEs innovation efforts?

**Supplier as well as Distributor:** The relations between the company in focus and their suppliers as well as distributors are business-to-business relations. Such relations may be described by categories, including different kinds of positions in the value-chain or relations going from full competition to full symbiosis, see for example (Aldrich 1999; Todeva and Knoke 2005). Linnarsson and Werr (2004) describe it in a scale from en exploiting to en exploring relation. The exploiting relation typically presupposes a well defined situation with a clear contract. Exploring relations are less studied, but innovation processes generally demands openness and flexibility.

**Intern or extern exploitation**

The project requires that the researchers can focus on documentation, monitoring and validity while working with the companies and science parks. By the principles for research design by Maxwell (2005) a general structure for interlink the methods with defining the specific research question. In order to ensure validity it is important that methodological activities are in accordance with the research in question. In this case the cyclic structure for action research by Coghlan & Coghlan (2002), presented in the figure below, is adopted for the project.

The cycle illustrated in figure 4 consists of four general phases: 1) Diagnose (Data gathering, Data feedback and Data Analysis), 2) Planning, 3) Action and 4) Evaluation, each part supplying valuable deliveries to researchers as well as intermediaries and companies.

These four phases are implemented in a cyclic activity plan as follows below.

![Figure 5. Principles for research design. (Maxwell, 2005).](image1)

![Figure 6. The action research cycle (Coghlan & Brannick, 2001)](image2)

**Project activities**

The content of the work on company level is aligned with the phases of Figure x where the full three year plan in given, and the initial year is described in detail in the following sections.
Diagnose phase (Q1 2010)
The objective is to define a benchmark for further development and coming cycles.

- An innovation audit based up on the five innovation critical factors, Strategy, Learning, Processes and Relations (Tidd & Bessant, 2009) is giving a current state description of innovation capability in terms of quantitative and qualitative parameters.
- All audits are followed by on interviews based on the questions of the audit but given from a "how" perspective.
- Research question clarification and elaborated state of the art study.
- Basis for seminar series for the planning phase.

Planning phase (Q1 and Q2 2010)
The objective is to prepare and raise the ability for a coming action phase.

- A seminar series of four seminars in accordance with the four phases in the innovation process according to Tidd & Bessant (2009): Search, Select, Implement, Capture. Finally a fifth seminar on a collected innovation strategy is held.
- Before each seminar relevant literature and state of practice is provided to the participants.
- Each seminar is held in two steps. Initially a seminar on a system level where all companies’ management participate and to-be situations are defined. Secondly a seminar on company level for each company, providing understanding of the specific phase in innovation.
- A key instrument of the seminar series is a logbook where reflections and observations are documented. The final seminar on a tentative innovation strategy for each company is based on the logbooks.

Action phase (Q3 and Q4 2010)
The objective of this phase is to work with innovation improvement actions on a project level where the researchers partly participate and facilitate the development.

- During the phase company specific development projects are conducted on a product level concerning product innovation, operations management, organization, leadership, creativity and other aspects with links to the organizational preconditions for innovation.
- Findings and experiences are transferred to a company and system level.
Evaluation phase (Q4 2010)
The objective of this phase is to analyze the results of the earlier phases in order to adjust and improve a coming cycle of research and development.

- The actions and the results are evaluated in accordance with the initial state, the objectives of the actions and the objectives of the innovation strategy.
- Define next cycle for the initial two companies, going into a second work cycle.
- During the evaluation phase, the two coming companies are secured and introduced into a coming work cycle.

Expected results
Expected results from the research would be in personal, industrial and academic ways.
On the personal level I believe that I’m going to be more accurate in how to manage further research on my own, I also believe that the outcome of the research results could be used as a base for coming consultation in the area for innovation management at SME. Another personal outcome is a licentiate thesis within the next coming two years.
In the industrial level I believe that the participating companies in the project “Wings of innovation” (WoI) will improve their innovation capability in order to be more secure in how to prepare the organization for innovation. The companies will be familiar to using innovation toolkits developed through the project together with the researchers.
The academic results will be as followed schedule;

2010: Two conference papers from the work packages WP1 and WP2.
2011: Two conference papers and two journal papers from the two work packages.
2012: Two journal papers and two licentiate theses should be presented during 2012.
The results above will be as both first writer and second writer to the conference and journal papers.

8 Hot Topics
A look at the research scope indicates several topics that are important. The research field is about collaboration between the Key actors as described earlier. A look at the whole picture of innovation contains a complete palette of different combination of innovation “set ups”. Below follows a list of some hot topics right now, every one of them has a connection to each other in some way. A major work is to sort them out and try to connect them in the right order according to the Key actors. As the research is about e.g “innovation management”, “innovation models” and “user driven innovation” it was interesting to see how many hits there were on www.google.com, even more interesting is to see how few hits there are when SME is added, one thought is that there’s not so much focus on SME in general which might do this research even more interesting and will be used as a guideline to find more actual research and literature. To illustrate the difference two examples are showed below;

<table>
<thead>
<tr>
<th>KEY WORD</th>
<th>GOOGLE.com</th>
<th>GOOGLE SCHOLAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Customer driven innovation”</td>
<td>1.400.000 hits</td>
<td>222 hits</td>
</tr>
<tr>
<td>“Customer driven innovation” and SME</td>
<td>17.700 hits</td>
<td>34 hits</td>
</tr>
<tr>
<td>“Innovation models”</td>
<td>99.300 hits</td>
<td>8.600 hits</td>
</tr>
<tr>
<td>“Innovation models” and SME</td>
<td>2.740 hits</td>
<td>656 hits</td>
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</table>
Literature

The following list of literature recommended by senior innovation researchers and researcher colleges:


Discusses how external actors can contribute to the innovation process and how cooperation


Describes how the user contributes to the innovation system as problem solvers long before manufacturers even know there is a problem.

Discusses how there are business opportunities in areas where every existing firms thought everything was “already done”.


Shows and describes an innovation model in four distinctive phases and how to manage the innovation process in an overview perspective.

Utterback J., M. *Mastering the Dynamics of Innovation*
Describes the dynamics of industrial innovation, from how innovation enters an industry and established firms typically respond, and the importance for new and old players to – over time establish a dominant design.
Central papers/journals

**The Innovation Journal**
An independent, peer-reviewed, Internet-based journal devoted to sharing ideas and discussing public sector innovation. It publishes scholarly and practitioner-oriented papers, books, case studies, review essays, and book reviews.

**Journal of Technology Management & Innovation**
Journal of Technology Management & Innovation (JOTMI) is a quarterly online, international, peer-reviewed journal published by the Facultad de Economía y Negocios, Universidad Alberto Hurtado. The objectives of JOTMI are to develop, promote and coordinate the science and practice of Technology Management & Innovation. It also aims to help professionals that are working in fields as, engineering and business educators and policy-makers to contribute, to disseminate information and to learn from each other's work.

**Technovation**
The journal encompasses all facets of the process of technological innovation from conceptualization of a new technology–based product or process through commercial utilization. Topics include technological trends and breakthroughs which will support innovation.

**International Journal of Innovation and Technology**
The objectives of the journal are to develop and promote the fields of innovation and technology management. Topics of the journal are e.g. Innovation in SME and management of Emerging/Disruptive Technologies.

Leading conferences

Searching for conferences was not an easy task at this time, most of the interesting conferences are closed for applying papers. I guess that the caldariums will be updated for next year during the summer. However, I found two conferences still open for submitting papers.

**The 3rd ISPIM Innovation Symposium - Managing the Art of Innovation:**
Turning Concepts into Reality – Quebec City, Canada on 12-15 December 2010. Organised by ISPIM and hosted by INO, a leading non-profit R&D centre in Optics/Photonics in Canada, this symposium will bring together academics, business leaders, consultants and other professionals involved in innovation management. The symposium format will include facilitated themed sessions for academic and practitioner presentations together with interactive workshops and discussion panels. Additionally, the symposium will provide excellent networking opportunities together with a taste of local French Canadian culture.

**3rd European Conference on Intellectual Capital ( ECIC 2011)**
University of Nicosia, Nicosia, Cyprus 18-19 April 2011
Today, almost 80% of economic value creation is based on intangible resources. However, most organizations still do not have appropriate management practices that reveal the value of these resources and how to give direction to future value creation. The concept of intellectual capital gives intangibles ‘a body’ and therefore makes it possible to measure the outcomes of its related initiatives, communicate and interpret them. The ECIC combines practice and theory to give a state-of-the-art overview of intellectual capital management and performance measurement. http://www.academic-conferences.org/ecic/ecic2011/ecic11-call-papers.htm
Key individual industrial players

Examples of actors who contribute to the innovation system in different aspects, in my point of view the industrial players must not only be innovative in their mindset, they have to bring innovation into other organizations as well;

IDEO ([www.ideo.com](http://www.ideo.com))
One of the worlds most famous design companies. Works closely to Apple who are well known for creativity and user driven design.

Ergonomidesigngruppen ([www.ergonomidesign.com](http://www.ergonomidesign.com))
A Swedish company using “user driven design” as a part of their innovation model. Started in Stockholm in the 70’s and are now established in USA, Japan, UK and Switzerland.

Ideation ([ideationtriz.com](http://ideationtriz.com))
Uses TRIZ as business idea. TRIZ which was developed by Genrich Altshuller, a Russian inventor, in 1946 and is a short for Theory of the Solution of Inventive Problems.

Innovation Impact. ([www.innovation-impact.nu](http://www.innovation-impact.nu))
A Swedish company who works closely to end users to find the next customer need and then develop products and services in cooperation with companies in the specific market.

Innocentive ([www.innocentive.com](http://www.innocentive.com))
Provides crowd-sourcing as an business idea. Help companies to find external experts to specific tasks as a part of a companies innovation process in “open innovation”
References:
Creativity and Innovation Management, 11 (2), 122-132.