How can innovation frameworks for global technology intensive companies be modeled and formalized?

A case study of Saab AB
Acknowledgments

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Abstract
In a seemingly ever faster moving world where global competition is rising, companies has to find their competitive advantage. This advantage could be by offering a lower price on similar products or for instance by offering a superior product. What makes a product superior in comparison with the competitor's products and how can the company maintain its competitive advantage.

One of the main solutions for this dilemma is to be more innovative than the competitors and thereby gaining the competitive advantage. Becoming innovative doesn't mean relying on sheer luck; instead the company has to adapt the proper innovation management.

This thesis aims to research and suggest how a conceptual innovation management framework could be modelled for a large technology heavy organization. The findings of applicable theories together with the empirical study clearly show that in order for a large technology heavy company to improve its innovativeness it has to act under an innovation management framework, where innovation strategy and designated roles are clearly stated.

Key words: Innovation Management, Innovation Management Framework, Innovation Champion, Innovation Leader, Creative Genius.
# Table of contents

Acknowledgments ......................................................................................... 2

Abstract ....................................................................................................... 3

Table of contents ......................................................................................... 4

1. Introduction ............................................................................................. 5
   1.1 Background .......................................................................................... 5
   1.2 Aims and objectives ............................................................................ 5
   1.3 Boundaries .......................................................................................... 6
   1.4 Disposition .......................................................................................... 6

2. Methodology ............................................................................................. 8
   2.1 Literature ............................................................................................ 8
   2.2 Case study ........................................................................................... 8
   2.3 Interviews ............................................................................................ 8
   2.4 Methodology problem ......................................................................... 9

3. Theory .................................................................................................... 10
   3.1 Innovation and Innovation management ............................................ 10
      3.1.1 Incremental innovation ................................................................. 11
      3.1.2 Modular innovation ................................................................... 11
      3.1.3 Discontinuous innovation ........................................................... 11
      3.1.4 Architectural innovation .............................................................. 11
   3.2 Framework .......................................................................................... 12
      3.2.1 Innovation Funnel ........................................................................ 13
      3.2.2 Stage Gate Model ....................................................................... 14
      3.2.3 Incentives ..................................................................................... 14
   3.3 Why innovate? ..................................................................................... 15
   3.4 What to innovate? ............................................................................... 16
   3.5 Roles within innovation management .............................................. 17
      3.5.1 Innovation Leaders .................................................................... 17
      3.5.2 Creative Geniuses ....................................................................... 18
      3.5.3 Innovation Champions ................................................................. 18

4. Empirical study ....................................................................................... 20
   4.1 Saab .................................................................................................... 20
   4.2 Case Study ........................................................................................... 20

5. Result ..................................................................................................... 22
   5.1 Quantitative Survey .......................................................................... 22
      5.1.1 Innovation Leaders ...................................................................... 22
      5.1.2 Innovation Champions ................................................................. 23
      5.1.3 Creative Geniuses ....................................................................... 24
   5.2 Qualitative Study ............................................................................... 26
      5.2.1 Innovation Leaders ...................................................................... 26
      5.2.2 Innovation Champions ................................................................. 27
      5.2.3 Creative Geniuses ....................................................................... 28

6. Conclusions ............................................................................................. 29

7. Bibliography ............................................................................................ 32
   Articles .................................................................................................... 32
   Literature ................................................................................................. 33
1. Introduction

This master thesis is about the importance of proper innovation management within a technology heavy organization. Further on the benefits of working under an innovation management framework will be highlighted. Firstly the background is presented in a broad view. Secondly the aims and objectives of this thesis are being presented. Following this section is the boundaries of the thesis. Lastly the disposition of the thesis is presented

1.1 Background

In order for companies to succeed they have to form a competitive advantage. This could be done in many different ways, but mainly with superior products/services or a more attractive pricing. When competing with products rather than price the competitive advantage could be a more innovative product. In order for companies to produce and sell innovative products, the companies themselves have to be innovative. Since relying on luck would be a poor strategy the companies have to be prepared somehow. Companies that are prepared will more easily acknowledge possible innovations and know what to do with them when transferring an idea into a product. These preparations that a company undertake will not automatically guarantee success, but success will more likely be achieved.

What these preparations are differs from company to company and from business to business. They could be as simple as a checklist or more advanced like a blueprint or a framework. As will be shown in this thesis, the companies that adopt some kind of innovation management framework are not only seen as more innovative than their competitors, but they also are more innovative than their competitors. This is due to better preparations in comparison with existing competitors.

1.2 Aims and objectives

The aim of this thesis is to test the hypothesis that: “by reviewing and analysing innovation management, a conceptual framework can be formalized for a large technology heavy organization”.

The main objectives for the research study are:

1. Review and analyse innovation management and especially for large and technology intensive organizations with focus on why companies should be innovative, what companies should innovate around and which individuals that should be part of the innovation management.
2. Study the role of a model for innovation management and suggest a conceptual framework for large technology intensive organizations.

1.3 Boundaries
The primary boundaries of this thesis are to research the possibilities of a framework, in large organizations that are technology intensive. The main reason for this distinction is due to the case study at Saab AB a large and technology heavy organization. It is through the case study the perspective of large technology heavy organizations are met.

Besides previous mentioned boundaries the framework will focus on why companies should innovate and what these companies should innovate around. Furthermore focus will be on different important innovation management roles, i.e. who should be part of the innovation management. These roles are as follows:

1. Innovation Leaders
2. Creative Geniuses
3. Innovation Champions

1.4 Disposition
The disposition of the thesis starts by presenting applicable theories from previous academic studies that the thesis relies on. The methodology section, where used methodology is presented together with the reason of choosing the used methodology, follows this section. Next part of the thesis is the empirical section, where the case study will be presented. This section will be concluded with usable results from the case study. Finally an analysis section will follow

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1 Morris 2011
with suggestions for the future and a formalized framework for innovation management.
2. Methodology

The methodology includes a short description of what kind of literature that has been used during the literature study. This section is followed by the case study, where the quantitative survey and the qualitative study is outlined. Along with the case study several interviews have been conducted, which is described in the following section. The final section regards the methodology problem, where potential problems are highlighted during the thesis.

2.1 Literature

The major part of the literature study consists of academic articles, disputations, scientific reports, and academic textbooks. These sources of information have been available at the KTH library, academic databases and online bookstores. The used sources have been challenged with criticism in order to ensure the correctness of the sources. Furthermore when possible theories have been cross-referenced between different scientists and authors.

2.2 Case study

The main part of this thesis consists of a case study at Saab AB. This study has been divided into two different parts consisting of a quantitative survey and a qualitative study. During the case study designated individuals have been contacted and interviewed. All participants have answered the questions in both the quantitative survey as well as the qualitative study. The case study will be used as a model for innovation management at large technology heavy organizations. Together with existing theories and several interviews a conceptual framework for innovation management will finally be suggested.

2.3 Interviews

During the progress of the thesis several interviews have been conducted with different individuals. These individuals were contacted in advance and later on interviewed both by email, telephone and face-to-face. All of them are currently working at the researched company within the current innovation management organization. The interviewed individuals are in some sense acting in accordance with the roles described below, however these roles haven’t been formally
designated and the roles are not generally known within the company. The roles are listed as follows:

1. Innovation Leaders
2. Creative Geniuses
3. Innovation Champions

Besides the interviews that have been conducted within the case study, Professor Staffan Laestadius has been interviewed. Staffan Laestadius is Professor in Industrial Development at KTH and much of his research has been focused on innovation processes. Within his field his peers and colleagues regard Laestadius with at most respect.

2.4 Methodology problem

Since the case study is commenced at a private company there may be some issues regarding company secrets. A way to avoid these issues is to research the problem in a more general way and thereby reaching a more general conclusion for large technology heavy organizations. With regard to these issues there will be very little focus on Saab as a company and the company will only be used as a platform to implement theories and the research.

2 Morris 2011
3. Theory

The theory part of this thesis firstly consists of a section where innovation and innovation management are described together with different kinds of innovation. Secondly the concept of an innovation management framework is presented both generally and more specific. The following sections regards the question is companies should be innovative and what they should innovate around. The last theory section regards the different roles within innovation management.

3.1 Innovation and Innovation management

What is innovation and what is innovation management? An easy answer would be that innovation is something new, which of course is all too easy. A short way of explaining innovation could be that innovation is a process of turning opportunity into new ideas and putting these into widely used practice\(^3\). Another way of explaining innovation is that it could be described as a process, a result and an attribute\(^4\). The basic explanation of innovation management is that it regards managing processes within innovation. These processes are very important, since wrong processes result in inefficient product development and R&D\(^5\).

A common thought about innovation is that an innovation has to be something new. However there are different kinds of innovations, which could be completely new and revolutionizing or just updated versions of previous innovations. Furthermore an innovation doesn’t have to be a product or a technological solution. Instead an innovation could as well be a service or even a completely new business model\(^6\). The different kinds of innovations will be described during the following sections.

\(^3\) Tidd, Bessant & Pavitt 2005  
\(^4\) Morris 2011  
\(^5\) Tidd, Bessant & Pavitt 2005  
\(^6\) Osterwalder & Pigneur 2010
3.1.1 Incremental innovation
Incremental innovations could be described as small changes in a product or a service\(^7\). For instance software updates or a car model that has been “face lifted”. Basically these types of innovations could be seen as improved versions of existing innovations that used to be more radical as innovations.

3.1.2 Modular innovation
Modular innovation occurs when there is a significant change within a product at the same time as the overall structure stays the same. One example is incorporating carbon fibre in airplanes instead of titanium and aluminium\(^8\). Another example could be the Toyota Prius with its hybrid engine.

3.1.3 Discontinuous innovation
Discontinuous innovation or radical innovation are the types of innovation that dramatically changes the field of the market with radically new products that are involving giant leaps in technology\(^9\). For instance the PC, jet engines and trains are all originally discontinuous innovations, but the changes made to them nowadays are usually incremental due to smaller upgrades.

In discontinuous innovations neither the end state nor the way in which the process is achieved are known. In these kinds of innovations the entire set of rules of the game changes and there is a clear scope for new entrants\(^10\).

3.1.4 Architectural innovation
Finding new ways to manage old innovations are also innovation. For instance Ryan Air, Easy Jet and Southwest Airlines are all part of an architectural innovation. Before these airlines started to operate there were basically two major types of airline passengers, Business and charter. With the rise of low-fares-airlines a new category of passengers emerged\(^11\), who only cared about reaching other cities as cheap as possible.

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\(^7\) Tidd, Bessant & Pavitt 2005  
\(^8\) Ibid  
\(^9\) Veryzer 1998  
\(^10\) Tidd, Bessant & Pavitt 2005  
\(^11\) Ibid
3.2 Framework

How come companies like Apple and Cisco are generally viewed as more innovative than other companies? It’s quite obvious that they somehow are prepared and are working systematically and disciplined rather than relying on luck. One of the major strategies of Cisco is to grow by acquiring other companies. The way of acquiring companies and implementing them into the organization have been standardised during the years in order to make the implementations smoother. Since growing by acquisitions is a strategy, Cisco has become experts on how to effectively incorporate new companies into the main company. In other words Cisco has developed some kind of innovation management system or framework in order to enhance their innovation management.

A company that often are cited, as one of the most innovative companies in the world is Google. One of the innovative features that probably are the most famous is the employee personal time management. In Google’s system the employees has to spend most of the working time with their normal tasks. However in contrast with most other companies, some of the working time is free to work on personal projects within the company structure.

For a company to be successful in its innovation it has to be prepared for circumstances when it needs to be innovative. I.e. develop some kind of readiness rather than depending on luck. This readiness could be as simple as checklists and more advanced like blueprints or an entire system.

One study concludes that if a company are to be able to develop innovations they must have (an innovation management system) where customers needs & requirements together with technological opportunities are taken into account. Another study moves further on and stresses that the assessment of the

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12 Morris 2011
13 Leastadius, Staffan; Professor of Industrial Dynamics. Interview on 2013-04-12
14 Tidd, Bessant & Pavitt 2005
15 Tuominen, Piippo, Ichimura & Matsumoto 1999
customer needs, is one of the most important parts of the product innovation management within B2B\textsuperscript{16}. This assessment is very crucial, since customers don’t always know in advance what they really need or want. A customer may very well have a strong belief about what they need or want, when they actually need something else or something different. By doing the assessment part rigorously a company will better solve the customer needs and requirements.

\textbf{3.2.1 Innovation Funnel}

As a part of the innovation management framework there are several processes that has to be taken into account when deciding on which innovations should be pursued and vice versa. A suitable tool for managerial decision is using the Innovation Funnel.

The first stage in the innovation funnel is to search for possible innovations. This search is done in accordance with the company strategy. The next stage is to select which innovations the company should move on with through a selection process. The last and final stage is to implement the selected innovations, i.e. produce and market them as products/services\textsuperscript{17}.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{innovation_funnel.png}
\caption{Innovation Funnel}
\end{figure}

The first stage of the innovation funnel is particularly important since this stage could be compared as the idea management part of the innovative processes.

\textsuperscript{16} Kärkkäinen & Elfvingren 2002
\textsuperscript{17} Tidd, Bessant & Pavitt 2005
Managing this process effectively has been proven to result in increased sales of the new products\textsuperscript{18}.

### 3.2.2 Stage Gate Model

Another helpful managerial tool within product development processes is the stage gate model. This tool is primarily built upon the innovation funnel with the phases from search to implementation. The main difference is the usage of gates between the different stages. In order for an innovation to pass a stage it must fulfil predetermined criteria at each stage. Then and only then the gate will open and lead to the next stage\textsuperscript{19}.

![Figure 2 Stage Gate Model](image)

#### 3.2.3 Incentives

A fairly common way for companies to handle their patent processes is to offer the patent originators some kind of incentives, in order to stimulate further inventions. These incentives are often financial incentives, such as one month's extra salary for an example. This method could of course be applicable within an innovation management system as well. However, there are several studies that point to the fact that financial incentives like corporate bonuses could very well attract an unwanted behaviour. For instance individuals that are mainly motivated by money will probably seek solutions that would maximize the financial incentives. Further on these individuals would probably move to another employer if the offered salary were higher\textsuperscript{20}.

While financial incentives are not always the best practice for stimulating innovativeness, others could be more suitable for promoting and stimulating

\textsuperscript{18} Cooper & Edgett 2008  
\textsuperscript{19} Cooper 2001  
\textsuperscript{20} Pfeffer & Sutton 2006
innovations. As shown with the case of Google, the possibility to work with one’s own idea is clearly an incentive used in order to strive innovation. Besides the possibility to work with one’s own projects, individuals desire to be seen and acknowledged. The possibility of being acknowledged by upper management is an often neglected incentive, that very well could be a powerful tool when promoting a more innovative climate\textsuperscript{21,22}.

3.3 Why innovate?

The question may eventually sound a little bit strange however it’s far from certain that all companies should be innovators. Most companies are not leaders of innovation among their fields; instead they have adopted a clear strategy that aims to be fast followers. I.e. they copy the innovation leaders and offer somewhat the same product at a different price or with some other kind of advantage\textsuperscript{23}.

When defining what strategy the company should adopt there are several steps that could be helpful in order to achieve the appropriate strategy.

1. Define a point of view about the external environment.
2. Identify your current position.
3. Define your goals.
4. Design the strategic hypothesis.\textsuperscript{24}

Another question that might seem a little bit strange is if there is a need for the company to be innovative. One study concludes that project-based companies are more likely to have a less innovative strategy in relation to non-project based companies. Instead the project-based companies are investing in innovative projects and thereby adding to their innovativeness\textsuperscript{25}.

\textsuperscript{21} Pfeffer & Sutton 2006  
\textsuperscript{22} Morris 2011  
\textsuperscript{23} Ibid  
\textsuperscript{24} Ibid  
\textsuperscript{25} Blindenbach-Driessen & van den Ende 2010
Lastly by being innovative and more precise increasing the innovativeness there are several gains both for the company and the company’s customers. These benefits include potential new markets, a broader range of products and increased quality of existing products\textsuperscript{26}.

**3.4 What to innovate?**

When the company has answered the question about why they should innovate they have to know what they should innovate or at least having a strategy that covers this area. Knowing what to innovate is obviously important. Something that may even be more important is to know what not to innovate around. An innovation that does not fit the company strategy may very well be an innovation with potential, and thereby may possible to spin-out or spin-off.

An important part of finding out the appropriate corporate strategy is to understand under which market and product conditions the company is acting. Knowing under which condition the company operates, enables the company to presume under the same conditions, develop new products, pursue new markets or both pursuing new markets and developing new products.\textsuperscript{27}

<table>
<thead>
<tr>
<th>Current Products</th>
<th>New Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Markets</td>
<td>Market Penetration</td>
</tr>
<tr>
<td>New Markets</td>
<td>Market Development</td>
</tr>
</tbody>
</table>

*Figure 3 Ansoffs Matrix\textsuperscript{28}*

Using Ansoffs matrix as a tool is helpful when deciding on future corporate strategy. If the strategy is to penetrate new markets together with new products and ideas, the strategy will be diversification. With diversification the company focuses on a bundle of different products and thereby building a portfolio of different products. The theory of diversification was originally developed during

\textsuperscript{26} Tomala & Sénéchal 2004
\textsuperscript{27} Ansoff 1987
\textsuperscript{28} Watts, Cope & Hulme 1998
the 1950s, by the Nobel Prize laureate Harry Markowitz, through his modern portfolio theory (MPT). According to Markowitz a suitable portfolio of products includes different products and different markets. By the diversification of the MPT-portfolio some of the risks of the company are diminishing, since the company isn’t depending on only one product or one market29.

3.5 Roles within innovation management

As discussed earlier there are different types of personnel that are seen as partners or participants within the innovation management system. These individuals exist together in the system and are all depending on each other, as well as the system is dependent on these individuals.

Above follows how the different roles interact with each other. The innovation leaders decide upon innovation strategy for the company. The strategy gets communicated through the innovation champions down to the creative geniuses. As shown the communication isn’t only top-down. Since the innovation champions act as intermediaries they also relay and translate between innovation leaders and creative geniuses.

3.5.1 Innovation Leaders

Within every organization and company there are managers at upper level whom are responsible for company strategy etc. A major part of the strategy planning is setting up core structures for handling innovations. This is the responsibility of the innovation leaders within the organization. By defining the

29 Markowitz 1952
30 Morris 2011
core structures, innovation leaders also set tone and climate that surrounds the innovation process. The core structures ranges from designing the organization and the underlying principles. Furthermore how the metrics and the rewards of the organization should be handled\textsuperscript{3}\textsuperscript{1}\textsuperscript{3}\textsuperscript{2}.

3.5.2 Creative Geniuses

Every innovation starts out with an idea from an individual or a group of individuals. The innovation process often starts out with someone asking critical questions regarding current products or services. These critical questions could for instance be:

\begin{quote}
\textit{Is this the best solution?}
\textit{Could we improve this solution?}
\textit{Why does this solution have to be like this?}
\end{quote}

The individuals that hold these tasks of an organization are primary the creative geniuses\textsuperscript{3}\textsuperscript{3}. The individuals holding this role could be employees in the organization as well as outsourced responsibilities. The major point with this role is that it doesn’t matter where the individuals are located in the organization. They can range from the hard-core inventors whom are at the frontline of new technology, up to the senior managers whom not necessary are inventors but through their exposure to trends and technology may be able to stimulate new ideas.

3.5.3 Innovation Champions

The innovation champions in the organization could be described as the intermediaries of innovation or even as innovation coaches. Their main task is to create a good and suitable environment for innovations in the organization. They manage this by providing the right tools and support for other individuals in the organization, mainly the creative geniuses. Mostly the geniuses will be handling the everyday work without the interference of the innovation champions.

\begin{flushleft}
\textsuperscript{31} Morris 2011
\textsuperscript{32} Buijs 2007
\textsuperscript{33} Morris 2011
\end{flushleft}
However at uncertain innovation conditions they will provide managerial advice both to the creative geniuses but also the innovation leaders. One might say that their major task is to inspire the organization to be more innovative and thereby nourish the innovation management.

The importance of the champions could be described as seeing the champions as the tipping sword within the organization. Almost every organization has the other described roles (leaders and geniuses), but it’s far from certain that actual champions exist. This role has to be created explicit within the organizational function; otherwise benefits from the role won’t be gained.

In order to be able to inspire the organization and its employees the champions have to be recognizable. This often leads to job titles as R&D VP (Vice President), R&D Director, CIO (Chief Innovation Officer) or Director of Innovation etc. Since these job titles are rather high up in the hierarchy, this automatically means that the innovation champions through their place in hierarchy in a more easy way could influence leaders and top management. Furthermore since the innovation champions are in the middle of the innovation network, they can refer other individuals within the network to the right individuals and right roles. For instance one genius may have an idea that doesn’t fit the strategy of his or her business area. However this idea may very well fit the strategy of other business areas, and thereby has to be communicated to the right individuals and roles at that business area, which is one major function of the innovation champion.

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34 Kelley & Lee 2010
35 Morris 2001
36 Ibid
37 Coakes & Smith 2007
4. Empirical study

The empirical study consists of a case study at Saab AB. During the case study several individuals have been interviewed at different positions at the company. These individuals have participated in both the qualitative study and the quantitative survey. All individuals are corresponding with the previous listed innovation management roles, however these roles are not generally recognized among the company.

4.1 Saab

Today Saab consists of five different business areas. Each business area holds all normal functions that a company usually holds, such as HR, Marketing & Sales, and Development etc. The main focus of this thesis has been on one of these business areas in general, Saab EDS (Electronic Defence Systems), together with some attention into the division Avionics that is a part of the business area EDS.

4.2 Case Study

During the case study several individuals have been interviewed at different positions. These individuals are all working at different levels within the product development area and could be seen as Innovation Leaders, Innovation Champions or Creative Geniuses. All interviewees have received the same questions in order to get their input regarding the company's innovation management. As pointed out earlier there is a quantitative section where each individual is asked to grade different aspects of the innovation management. This section is followed by a qualitative section, where each individual had the opportunity to elaborate in depth regarding the company's innovation management. The asked questions are as follows:

Q1: Does your company currently have an organization for innovation management?

Q2: How well is the innovation management currently functioning on a scale from 1 to 10, where 10 is flawless and 1 non-existing?
Q3: Are there any kind of innovation management framework/system/checklist/blueprint currently at your company?

Q4: If yes on Q3, how well on a scale from 1 to 10, where 10 is flawless and 1 non-existing?

Q5: Is there anything you feel is missing within the current innovation management framework/system/checklist/blueprint?
5. Result

The results of the empirical study are to be found within this chapter. Firstly the results of the quantitative survey are presented along with graphs where each individual’s grade is represented. This section is followed by the qualitative results, where the answers are presented by each group, such as Innovation Leaders etc.

5.1 Quantitative Survey

As described in earlier sections the case study consisted of an empirical study with mostly qualitative research but also a small quantitative survey. The findings of this study will be shown under the designated roles described in earlier sections.

5.1.1 Innovation Leaders

As a whole the group of innovation leaders give the highest grades regarding the innovation management, in comparison with the other groups. Leader2 and Leader3 does not approve of the innovation management, while Leader1 grades the innovation management as 8 out of 10. Overall the mixed grades are not satisfying since 2 out of 3 leaders, have a grade below 5.

Looking at the grades from Q4, they are somewhat the same. Leader1 and Leader2 have both lowered their grades. One interesting finding from Q4 is that Leader3 actually has increased the grade from Q2. This result corresponds with this individuals answer from the qualitative study. The individual feels there is
some kind of embryo of a fruitful framework. However at the moment it hasn’t been implemented and therefore the overall innovation management are graded lower. Overall the grading doesn’t point to an approved innovation management framework since only Leader3 grade above 5.

5.1.2 Innovation Champions

The company’s innovation champions have as a whole graded the actual innovation management of the company quite low. Grades that peak at 5 out of 10 clearly indicate that the innovation management can’t get an approval from the category.
If the answer of Q2 was bad, the answer of Q4 is even worse. Champion2 gives the same response, while Champion1 has lowered the grade to 1 out of 10. This clearly indicates that except a low average grade of the innovation management, the grade of the innovation management framework is far from approved.

5.1.3 Creative Geniuses
Among the Creative Geniuses within the survey the answers are in most quite coherent. One of the asked individuals differs from the others regarding the stated grades on Q2 and Q4, whilst the others are all below 5 as a grade. Except from individual 2 the grade as a whole can't be seen as an approval since 3 out of 4 individuals clearly grade below 5.
When it comes to grading the innovation management framework of the company, the average grading doesn’t differ that much. Genius1 and Genius2 have a higher grade, while the other two has a lower grade. Except form Genius2 the average grade of the innovation management framework is below 5 out of 10, which clearly indicates that the existing framework doesn’t function properly at the moment.
5.2 Qualitative Study
The Qualitative Study consisted of a more open reflection from each participant, where they could elaborate around the topic. All participants have been interviewed individually and the participants are the same as the participants from the quantitative survey. The answers will not be broken down to each participant, but instead for the group as a whole. The stated questions where as above:

Q1: Does your company currently have an organization for innovation management?

Q3: Are there any kind of innovation management framework/system/checklist/blueprint currently at your company?

Q5: Is there anything you feel is missing within the current innovation management framework/system/checklist/blueprint?

5.2.1 Innovation Leaders
The response of the Innovation Leaders is summarized as following:

Q1: The innovation leaders are virtually unanimous in their answers to the first question. They believe that there are several kinds of activities among the company that handle the innovation management. However they also believe that these activities are attached loosely to each other, if attached at all.

Q3: No clear system or framework that is used among the entire company. One of the leaders believes there is an agreement among colleagues about which aspects that are important for Saab regarding this matter.
Q5:
The group of innovation leaders want more distinct boundaries about what not to innovate. Create innovation teams consisting of participants from different backgrounds, such as mixing a team with individuals from marketing, M&A, R&D and portfolio etc. Having some kind of intermediary between upper management and innovators/inventors.

5.2.2 Innovation Champions

The response of the Innovation Champions is summarized as following:

Q1:
The champions stress the fact that an organization for patent handling exists and works quite well. An actual innovation management exists in smaller scale at each business area, however they feel that each business area handles this in different ways.

Q3:
No single framework among the company, however at one business area there is an initial building stone to a comprehensive framework. This framework consists of an intranet platform where anybody within the business area may upload an innovation together with a description. After it has been uploaded other colleagues can comment and suggest changes etc.

Q5:
Focus on value and continuity. A more organized function that inspire, support and generate and nourish a positive feeling around innovations. One or several employees should have this function as their main tasks.
5.2.3 Creative Geniuses

The response of the Creative Geniuses is summarized as following:

Q1:
Even though one of the geniuses feel there is a working innovation management, the group as a whole does not agree with that statement. They admit that there is a functioning system for patents, but disagree regarding the actual innovation management. Furthermore they feel that focus is more on easily sold products rather than innovations.

Q3:
Half of the geniuses are quite clear with their thoughts. There is no framework at Saab. The other two are a little bit more positive however there is a silent agreement that innovations are made spontaneous rather than planned in advance within some kind of system.

Q5:
Deeper contacts between product management and technology development, where needs are communicated. Furthermore they stress clarity and actual management around innovations and innovation climate. An innovation POC (Person of contact) should exist. A clear strategy about which type/category of innovations the company expect and require. Lastly there is a feeling that the company is too much process controlled. Instead of listening to potential customers and develop what they really require, the company is offering existing technology together with existing prices.
6. Conclusions

When crafting an innovation management framework or system, there are several aspects that have to be taken into account. Firstly the company has to decide if it should be innovative and what kind of products and services it should innovate around. This part is important since this is where the company strategy is formulated. A strategy may very well be to become the fast follower of the market, which of course is less expensive but also less innovative. However as shown in the theoretical part, prior studies indicate that companies that are innovative, benefit through increased sales, market penetration and superior products. Regardless of which path is chosen, the company has to choose a path and clearly communicate the strategy within the company.

Further on knowing what to innovate around and especially what not to innovate around is highly important, when crafting the innovation management framework. It is often easier for a company to answer the first question, and more difficult to answer the second question. Knowing the second question enables the company to focus on core products and furthermore having a spin-out/ spin-off plan for innovations that doesn’t fit the product portfolio. This part is stressed as important by both theory and the empirical study.

Following the questions regarding why a company should be innovative and what the company should innovate around, there is the question about which individuals that should be included in the innovation management framework. Basically everybody in the company is part of the innovation management, however, at different roles. Anybody could be a Creative Genius, the only limiting denominator is the fact that an employee has to come up with an innovation. The other two described roles (Innovation Leaders and Innovation Champions) are somewhat more important to actually be appointed directly. Looking back at the what? and why? question, it is very important that upper management clearly communicates the innovation strategy downwards in the company. The task of formulating this strategy lies with upper management, such as CTO and CIO. The role as Innovation Champion is probably the most important role in this equation. It is important since the Innovation Champion acts as an intermediary
within the company. Further on the Innovation Champion is the POC (Person of Contact) within the company. He or she doesn’t decide on strategy, instead they inspire the Creative Geniuses and supply the necessary tools. The empirical study clearly indicates that this role isn’t met in a sufficient manner.

Following these statements, there is the question regarding the actual framework of the innovation management of a large and technology heavy organization. As shown from the theoretical section, there is no universal framework that is suitable for every company. Instead companies have to construct their own framework in accordance with their own needs. The framework doesn’t have to be advanced; instead it could be simple and easy to follow like a checklist. For instance it could be an easy checklist or blueprint built upon the stage-gate model. The main function of the framework is to prepare the company for future situations, so that key individuals know what to do in these probable situations. Further on these individuals has to know that they are a part of the framework and thereby their place within the framework.

The findings of this thesis have explored conceptual requirements of a potential innovation management framework within a large technology heavy organization. Based on theoretical findings and empirical research a suggestion of a conceptual framework for a large technology heavy organization would include the following topics:

1. A clearly communicated innovation strategy from upper management, where the question regarding why the company should be innovative is answered.

2. A clear decision from upper management regarding what kind of products the company should innovate around in order for all participants to know the innovation boundaries.

3. Clearly stated roles within the innovation management framework. Each innovation leader and innovation champion in particular should be well known among the framework. By having these roles clearly stated the innovation strategy gets communicated easier and all participants know
who their POC is. Further on each innovation champion or POC knows whom they should contact at other business areas or divisions.

4. A nourishing innovation climate where all individuals of the company are included. Upper management and the innovation leaders in particular are the ones setting the tone and climate regarding this area, hence the importance of a clearly communicate strategy. By including the whole company, all individuals feel more participating within the innovation processes.

5. A helpful tool when promoting a more active involvement by all employees is to make it easy to participate. A suggested method is to use some kind of application where ideas easily could be shared, reviewed and commented. Following this application lays the importance of proper feedback. The lack of proper feedback could damage an active involvement, since participants might feel that they are not heard.

A suggested further study within this topic would be to research the possibilities to create an actual framework that could be used as a common denominator among technology heavy organizations.
7. Bibliography

Articles


**Literature**


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