Innovation strategies and ambidexterity within flat organizations.

The case study of Alfa Laval.

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Abstract

The progress of technology forces companies and organizations to alter their structure and operational procedures in order to stay alive, adapt to current incumbents and gain competitive advantage within their target markets. One of the major key concepts for this procedure is innovation. This was, and still is a timeless and demanding issue along with its consequences; how companies can achieve innovation and seize all benefits given.

Innovation has many “faces”, methods and models from which it can be approached. This thesis will analyze the basic strategies and types of innovation as well as their outcomes. To strengthen our investigations on the matter Alfa Laval was selected as the study case of this thesis, a company that has successfully been the leader in separation market for more than one century.
Before we proceed more extensively to the main subject of this thesis we would like to attribute our respect, appreciation and warm thanks to all of those who assisted, guided and inspired us through the fulfillment of the present task.

First and foremost we would like to thank Mr. Terence Brown, director of M.Sc. Entrepreneurship and Innovation Management at KTH, Royal Institute of Technology, for his help, guidance and feedback throughout the whole authoring period of our thesis as well as for giving us the opportunity to be a part of this experience. It was an experience which truly upgraded and expanded our academic knowledge and pneumatic horizons.

Next we would like to thank Alfa Laval Tumba AB for their exceptional co-operation, invaluable help and provision of all essential information without which we would not be able to complete the writing of this topic.

At last we would like to thank and dedicate this thesis to our friends and families, for supporting us through every step and decision we had to take.

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Ioannis Koulioumpas

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ABBREVIATIONS

AL: Alfa Laval

ALADIN: Alfa Laval Accelerated Development and Innovation

HSS: High speed separators

R&D: Research and development

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1 INTRODUCTION

1.1 Background

Two of the most widespread and commonly used innovation concepts are incremental and radical innovation. The basis on which those two innovation models were founded contradicts one another. One could say that incremental innovation is based on the idea “one step at a time”, a cost cutting or feature improvements method in existing products or services (Leifer, 2000). On the contrary radical innovation is based on the idea “swimming in unchartered waters”, a method in which instead of fighting for market share a company steps aside and simply creates its own market (Kim and Mauborgne, 2005).

Many companies choose incremental innovation for their product or service development because of the stability and low risk factor that this method provides. Additionally, since this type of innovation is focused on line changes or improvements in the company’s existing product the knowhow and quality of the product is situated in very high levels, increasing as such its competitiveness within the market (Tushman and O’Reilly, 1996).

Other companies see incremental innovation as an “old fashioned” method which ends up in a product development dead-end because of the satiation of improvements. Such companies tend to adapt to radical innovation methods exploring in this way completely new areas and markets in which they can achieve maximum growth and profit. Naturally, methods like radical innovation walk hand in hand with high risk factors and uncertainties.

Alfa Laval has been a successful multinational company for more than one century. In order to be competitive, the company has developed a significantly large product portfolio serving multiple markets. In this thesis we will focus in the development of just one of Alfa Laval’s basic products, the high speed separator, and we will follow its route growing from an idea to vast used industrial equipment around the globe.

In the first parts of our paper the background of our research will be introduced followed by the research objective and research question. The second chapter analyzes the theoretical framework that has been used in order for this paper to be conducted. Within this part, innovation and its models will be defined together with the routines that multinational companies follow. The third part of this study will be focused on the methodology used for this paper and will present the approach followed for the sampling and data collection regarding the interviews conducted. The fourth chapter analyzes the Alfa Laval case study and how the specific multinational company utilizes innovation models and strategies within the separation equipment product portfolio. Finally, the last parts of the paper contain the analysis on the research questions which are followed by conclusions and possible research areas for the future.
1.2 Research Objective and Questions

The objective of this master thesis is to study how Alfa Laval manages innovation processes in separation technology products. The intention is to analyze the steps and concepts that the company takes in order to reach success and keep its competitive advantage in competing markets around the world. Being a multinational company of such magnitude provides to Alfa Laval the potentials to identify new applications and necessary approaches to be taken internally in order to develop new products and constantly improve the existing ones.

Even though it could be argued that the two main concepts of innovation that are massively used by multinational companies are incremental and radical innovation, a really effective option for companies that wish to grow and continue to be profitable would be to combine innovation strategies and create a balance between them, exploring new possible products according to market demands or exploit already existing product benefits and extending their advantages. The motives behind such a combination is the stable growth rate, the wish in remaining innovative while spending less R&D money and the constant development of products that prevail in existing markets while having full potential in entering new ones. Another strategy that Alfa Laval is using as well is to acquire companies and learn from their products and innovation strategies, key component in terms of decreasing R&D costs and at the same time expand the product portfolio in various markets.

There are in principle different innovation strategies that various companies utilize and those are implemented in order to support their business model. Taking a closer look on those strategies one can draw useful conclusions and provide also guidelines for other companies that would like to follow similar business model and are founded upon the same philosophy. Such strategies can also develop our understanding on specific corporate culture and values that determine to a greater extent the company’s mentality.

The specific study focuses on the case of Alfa Laval and the research questions imposed are:

- How does Alfa Laval pursue product development and more specifically within the High Speed Separator product portfolio?
- Can incremental and radical innovation be combined within a flat organization matrix?

Those questions are going to be answered by combination of the knowledge included in the theoretical framework together with the outcomes that will derive from the case study and personal interviews from Alfa Laval employees in Sweden that are working within the High Speed Separator group.
1.3 Scope

The scope of this thesis is to identify how multinational companies with a vast product portfolio and a flat organizational structure can achieve growth, profit and high competence based on innovation models and strategies. For this scope Alfa Laval, which is the inventor of the High Speed Separator and has more than 130 years of presence in the industrial equipment market, serves as an excellent example, being a company which successfully overcomes the internal and external challenges in order to broaden its high speed separator product portfolio and maintain its leading position in the specific industry.

1.4 Limitations

This thesis has only scraped the surface of innovation methodologies and routines that Alfa Laval uses in relation to the high speed separator products in order to be successful in different markets and adapt these strategies in order to fit its complex organizational structure. The size of this study can be considered though insufficient, in order to completely analyse this complex phenomenon. The obvious reason is the magnitude of the company and the big portfolio of products handled by very different micro organizations and groups inside Alfa Laval, which is a main reason why this study has been narrowed down to the High Speed Separator product.

The case study of Alfa Laval used in the empirical studies of this thesis is operating in the technology market by manufacturing heavy industry products (high speed separators, heat transfer equipment, sanitary equipment, etc.). Therefore the structure of the paper has been focused and developed based on a “business to business” approach in order to focus on companies with common type of structure and evolvement.

Another denominator that acts in principle as a limitation to this research is that the product type in focus is the high speed separator, which is mostly handled via Alfa Laval in Sweden. That indicates that for a company despite its worldwide expansion, the product knowledge of the specific product group into investigation is established in Europe. That means that groups and colleagues share a common European culture and common geographical market conditions even if they receive input for the market worldwide. The research would have been more complete if the specific study would include different product groups as well as smaller cluster groups that were originated from different cultural environments. More to that, the differentiation of focusing the thesis subject in different product groups would have been also significant since the needs for developing and innovating on each product group are obviously different. That could also lead to a benchmark in different R&D groups within the company as well as benchmarking different development procedures and groups with different cultural backgrounds. Unfortunately, that type of investigation could not be achieved in this master thesis due to a restriction in information access and resources. A study with the aforementioned information could provide a deeper understanding of innovation practices in different conditions and could lead in developing guidelines in small companies that tend to expand in a worldwide market.

Another limitation of this study, directly linked with the above mentioned barriers is the absence of figures that would indicate the cost of implementing such innovation processes in different Alfa Laval groups and products. This could be a subject for future research in order to deeply understand how much could a company invest or spare in monetary terms and what should that company expect from that investment or cost reduction from any internal process change. This can also lead to a direct benchmark between specific internal innovation related processes and product groups.
2 THEORETICAL FRAMEWORK

2.1 Definition of Innovation

Innovation, originating by the Latin word “innovare” means “to change”. This change can be interpreted in various ways; bring something new into the surface, alter something that is already stated, approach a matter from a different point of view, etc.

Through the years many experts have tried to give a precise definition to the concept called innovation. Naturally putting each one his perspective on the matter those definitions differ from one another; but nevertheless going deeper in the philosophy of their statements it is clear that all of them follow a common baseline. Before summarizing and trying to provide a generalized definition to the concept of innovation, some statements are presented below:

“Innovation is the introduction of new goods, new methods of production, the opening of new markets, the conquest of new sources of supply and the carrying out of a new organization of any industry” (Schumpeter J., 1950)

“Innovation does not relate just to a new product that would come into the marketplace. Innovation can occur in processes and approaches to the marketplace” (Schmittlen D., 1981)

“Innovation is the way of transforming the resources of an enterprise through the creativity of people into new resources and wealth” (Schumann P., 1993)

“Innovation is a new element introduced in the network which changes, even if momentarily, the costs of transactions between at least two actors, elements or nodes, in the network” (Cabral R., 1998)

“The ability to deliver new value to a customer” (Campos J., 2011)

With all the above being stated we would attempt to define innovation as the process of creating value in order to cover new or even existing market and customers’ needs in new differentiated ways. This can be accomplished by creating new, different or more effective products, processes, services, technologies, or ideas that are readily available to markets, governments, and society.
2.2 Managing Innovation

After defining the concept of innovation, a new question rises into the surface; what are the outcomes and benefits that companies can harvest by managing innovation. The ultimate milestone of most companies and organizations is to maximize the profits by delivering their products or services to the market. To achieve this, a company needs to have the “competitive advantage” within the market that operates.

Two examples will be used to analyze this further. In the first example there is a company that manages to find an opening in the market for a completely new product or service. Being the first to launch this product or service means that competition is not yet established which leaves an open time window for the company to seize the opportunity of acquiring larger percentage of the market share. Of course finding completely new markets and products is not that common and it needs big risky steps to be taken by the company. However, it is one plausible way to manage innovation, “radical innovation”, which will be analyzed more in the next chapters.

The second example, which is most commonly met, is a company that launches a product in a market that has already been established. The competitive advantage in that case is what the new product has to offer to the customer which is more appealing than the existing one. That may be an extra feature or a differentiation in the way that the product reaches the market. Since we are talking about an already established market it is natural that competition has already started to grow reducing as such the possibilities of “new” things to come up. Still though having the competitive advantage even in a market with high competition will lead to profit over time. This way of managing innovation is called “incremental innovation” and will be also analyzed further on in the following chapters.

Concluding from both examples innovation can be managed in different ways having a common target, to give the company the market’s competitive and strategic advantage which will result to a temporary ‘monopoly’ profit (Schumpeter, 1950). The timeframe of this monopoly varies from case to case and between markets and will phase out when competitors start to imitate the product and emerge new “better” products. This constant search for new products, that will break the equilibrium of the existing monopoly establishing new rules, is called ‘creative destruction’ and is a process cycle that constantly goes on as long as the operating market is still active.

2.2.1 Types of Innovation

There are many ways in which innovation can be achieved. Nevertheless, innovation can be divided into four major types, known also as the ‘4Ps’ of innovation. Those are:

- ‘product innovation’; innovation coming from changes in the things (products/services) which an organization offers;
- ‘process innovation’; innovation coming from changes in the ways in which they are created and delivered;
• ‘position innovation’; innovation coming from changes in the context in which the products/services are introduced;

• ‘paradigm innovation’; innovation coming from changes in the underlying mental models which frame what the organization does (Tidd & Bessant, 2014).

The automotive industry can be used as a convenient example to explain more over the concepts of product and process innovation. In 1886 the German engine designer and car engineer Karl Benz, founder of the well-known company Mercedes-Benz, introduced the first car including an internal combustion engine. This was declared as the first “modern” car ever released in the world and has been actually the base for all engine designs until today. It is quite obvious that in Benz’s case we have a classic product innovation case were something “new”, something unique has been introduced in the market for the very first time.

In the beginning of the 20th century the mentality of Toyota’s founder, Kichiro Toyoda, brought to surface a new way of thinking regarding production systems. Main purpose of Kichiro’s concept was to improve the productivity and working efficiency by optimizing the manufacturing procedure. His belief was that ideal condition for creating products existed when all factors, people, facilities and machines worked together having as target to add value for the company and the product without generating any waste between lines and processes (Jeffrey Liker, 2004). This technique evolved in a great extent through the years standing today as one of the best lean manufacturing methods, adapted very often by new upcoming companies. Relating Toyota with ‘process innovation’ it can be stated that they may not invented a new product but the way to manufacture an already existing product having less costs and deliver it to the customers in a lower price.

Changing from the automotive industry to clothing/fashion industry Levi-Strauss is an appealing example to describe position innovation. Back on 1870s the company launched its first products as clothing material for manual workers. Monitoring through the years the trends evolving in the fashion market Levi-Strauss decided on 1920s to rebrand and redefine the context of its products from working clothes to all around every day clothes. The results of this change was jeans to become a massive fashion trend and Levi-Strauss to be positioned as market leader enjoying the benefits of its temporary monopoly until the 1970s where competitors started to grow significantly (Maryann N. Weidt, 1990).

The concept of paradigm innovation can be explained using low cost airlines companies as an example. Looking back at early 1980s the first low cost airline company was Southwest. Until then airplanes were a luxurious and expensive mean of transport. Southwest decided to alter the frame of this market by stripping off all extra not essential services during flight. This move gave the company the flexibility to cut down costs and deliver a less expensive service to the customers. This movement became popular in the following decades and new airline companies appeared basing their structures on Southwest’s paradigm.
2.2.2 Innovation Process Model

Defining the four types of innovation leads to the next step which is the process in which innovation can be managed in the optimum way. This process consists of three major phases, the search, select and implement phase; moreover implement phase can be divided into acquire, execute, launch and sustain (Tidd & Bessant, 2014).


Search Phase

The first phase of the process involves the scan of the environment’s potential signals that will lead to the desirable change. This change can be generated from the introduction of new technological opportunities, the alteration of existing ones, from legislative pressure or even competitor action. It is easily understood that every environment consists of infinite opportunities for change as long as the acting organization has the ability to identify, process and analyze the environment’s current needs and spaces that will lead to future development. This may sound simple but in reality it is a very complicated and time consuming process especially when the selected markets are saturated with high levels of competition.

Selection Phase

Metaphorically speaking, innovation can be described as a two-faced coin. One face can lead organizations to absolute success while the other can result to devastating implications. There are numerous cases were miscalculations and wrong selection of opportunities led companies to dead ends. It is thus essential that the selection of opportunities must be undertaken with the outmost consideration of the following three factors.

First factor is the flow of indications of the market opportunities that are available to the organization. Secondly is the ability and the competence of the organization to align with the selected opportunity-innovation. This competence consists both from the explicit and tacit knowledge the organization holds. At last the third factor is the correlation of the selected opportunity with the core business of the organization.

The second and third factors are the key points in the selection phase. Thorough analysis of these two factors will lead to the transformation of a simple opportunity into a successful and profitable move for the organization.
**Implementation Phase**

The third step of the process involves the realization of the initial idea to a successful deliverable commodity into the market, varied in the forms of a new product or service, a change in process, a shift in business model, etc.

As it was mentioned in the preface of this chapter implementation phase can be divided into four core elements, acquire, execute, launch and sustain the innovation. At the early stages of the implementation phase the lack of knowledge regarding the technology, market demand, competitor behavior etc. increases the levels of uncertainty and risks. Acquire core focuses on buildup of the required knowledge around the initial innovation that will minimize all these risks. After knowledge acquisition, follow the execution core which is the task of transforming the original idea to successful products, services or processes ready to be launched in the intended market. It is very important that the intended market is mature enough and ready to receive the product that has been created during execution core. This exploration and preparation of the market in order to align perfectly with the new product belongs to launch core. Finally the last step, sustain, is the phase in which it must be ensured that the market will continue to use the product over the long term.

Every phase consists of numerous mechanisms and routines which have been established to help organizations staying in the correct path for achieving each phase’s target.

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Table no.1: Innovation Process Mechanisms and Routines
2.3 Innovation Life Cycle

All innovations follow a certain life cycle. This cycle is nothing more than a repetitive process which starts with the creation of a new idea and ends with the creation of the next idea. Through the years a great effort has been made in order to understand and analyze this cycle of events. On 1978, Abernathy and Utterback created quite a convenient model to describe this process. In their model they divided the lifetime of an innovation in three consecutive phases; the fluid, transitional and specific phase.

In the first steps of the cycle uncertainties and difficulties appear more often based on the fact that the organization is speculating the market without having any clear target. Selecting the appropriate target and possessing the technical competence to deliver it belongs to the fluid phase of the model.

Following fluid phase comes the transitional phase, in which a dominant design emerges from the initial idea. A design that will set the rules of the market and the technological trajectories within which all research for improvements is constrained. Rising competition, imitation and development around the dominant design is also included in the transitional phase.

The last phase of the cycle, the specific phase, involves the refinement and customization of the dominant design based on the specific market needs. Eventually the margin of development becomes smaller through time, leaving small space for development. This fact along with the evolving needs of the market will bring to the surface new ideas that will terminate the life cycle of the old design by creating a new dominant design of its own. This last phenomenon was mentioned again in the beginning of chapter 2 and is called “creative destruction”.

2.4 Incremental versus Radical Innovation

Two of the most common patterns that organizations use to search for changes and new opportunities in the market are incremental and radical innovation. Those patterns contradict one another when it comes to their characteristics and way of approaching innovation. Bluntly one could say that the dilemma rising from those two attitudes is whether to be the first (radical) or to be the best (incremental) in your field. Which of those is more important or can those two be combined?

Henderson and Clark developed a model in which innovation is specified based on the core design and the architecture of the product, the way that components are integrated into the product.

In incremental innovation no changes occur in the core design concepts or the architecture of the product. Mostly it is a continuous exploitation and optimization of an already existing product (Henderson, Clark, 1990). Organizations that are based on high standardization, formalization, centralized decision-making as well as low differentiation between tasks tend to adapt better to the pattern of incremental innovation. This fact gives them more efficiency, low risk and simplicity in stable conditions. The drawback of this pattern is that due to the well-structured trajectories and mindset that has been set, the organization lacks greatly in flexibility and becomes unable to cope with rapid-changing environments and technologies.

On the other hand radical innovation involves vast changes both on the core design and architecture of the product (Henderson, Clark, 1990). In other words when radical innovation is being used something completely for the markets is being introduced. A product, service or so that will bring the phenomenon of the creative destruction mentioned previously. In order for an organization to achieve that huge steps into “uncharted waters” are needed and of
course this involves a great level of risk-taking. A big percentage of organizations following this pattern are based on little formalization, standardization as well as high differentiated task, cross-functionality, high integration between various departments and decentralized decision-making. This fluid set of arrangements give to organizations great flexibility in adapting to environmental changing conditions as well as the ability of immediate response to innovation of new emerging markets. The drawback of this pattern, compared to incremental innovation, is that constant radical changes do not leave space to the organization for optimizing and specializing the product or service. Building up a structured and competent knowhow regarding a technology, needs long-time stable conditions, a fact rarely seen in cases of radical innovation.

It is easily understood that comparing incremental and radical innovation we have stability against flexibility, great know-how against fresh ideas. What aspects must be developed within an organization in order to combine those two patterns?

On 1996, Tushman and O’Reilly introduced the concept of an ambidextrous organization; an organization with the ability of being successful not only at exploiting the present but also at exploring the future. Within such an organization both factors are equally important. The fact of being efficient on your every-day business while simultaneously having an open attitude in regards to radical innovation and new opportunities creates strong steps towards success for every organization. Based on Tushman and O’Reilly, to achieve this ambidexterity the following three aspects need to be developed:

- Articulating a clear and consistent vision which will set a strong base and emotionally engage all organizations’ members.
- Build-up a senior team with diverse competencies. It is critical to have a team with homogeneity in length of service, but diversity in backgrounds and perspectives. In that way a combination of greater consensus, faster decision-making, easier execution together with creativity and innovation can be achieved.
- Develop healthy team processes with balanced creativity and execution in a conflict-free environment which will promote collaboration.

By mentioning the major types, patterns and processes of innovation the theoretical framework is being concluded setting a base for the reader to combine this knowledge with the case of Alfa Laval, it’s innovation models and strategies.
3 METHODOLOGY

3.1 Research and Methodological Approach

The research objective is to analyze and pinpoint which type of innovation serves multinational companies in their need to establish and maintain competitive advantages against their competitors. To be more specific, incremental and radical innovation types are going to be investigated in the context of product development strategies of a specific company. The research focuses on the case of Alfa Laval which is an industrial equipment company that operates worldwide delivering different types of industrial equipment. The case of the company will be described in section 4 in detail. Nevertheless, it is important to mention that in this study the focus will be on a specific product which Alfa Laval has invented and launched; namely the High Speed Separator.

The approach used for this study is qualitative method since it is commonly used in order to examine phenomena within the environment they are taking place, through an interpretive and naturalistic point of view (Gephart, 2004). Bryman and Bell among others indicate that qualitative research “embodies a view of social reality as a constantly shifting emergent property of individuals’ creation” (Bryman & Bell, 2011).

Case study method is chosen to be the most appropriate, considering that it contributes “to our knowledge of individual, group, organizational, social, political and related phenomena” (Yin, 2009); simultaneously is used to illustrate contemporary issues, which in this case involve multinational companies’ struggle to remain competitive through innovation. Alfa Laval is used as a case study in order to answer the “how” and “why” multinational companies use innovation as a means to establish their sustainability in a constantly changing market, as suggested by this method (Baxter and Jack, 2008).

In order to follow Eisenhardt’s (1989) suggestion on building theory from case studies, interviews are conducted with members of Alfa Laval, working in different departments within the company. To be more specific, “building theory from case studies is a research strategy that involves using one or more cases to create theoretical constructs, propositions and/or midrange theory from case-based, empirical evidence” (Eisenhardt, 1989, Eisenhardt & Graebner, 2007). As a next step, the interviews are combined with the use of the literature presented in the theoretical framework section, in order to answer the issues under question.

3.2 Sampling and Data Collection

The interview sample consists of Alfa Laval employees that work within different departments in the organization. The selection of the interviewees is based on the criterion of convenience (Krishnaswamy & Satyaprasad, 2010) since both the researchers are currently employed by Alfa Laval. The material for this thesis is gathered from in total five interviewees who were conducted between February 2015 and March 2015. One of the interviewees works in the R&D department for HSS in Alfa Laval, while one is part of the sales development department. The other three interviewees are part of the product center of the HSS, responsible for maintaining and developing the product portfolio and acting as product managers.

Interviews are chosen as they are considered to be a really suitable method in case study scenarios (Yin, 2009). Consequently, the research is conducted based on semi-structured interviews with Alfa Laval employees who participate actively in the product development
and innovation processes of the company, either through working in R&D or by participating in the decisions around the upcoming products to be launched during the next years.

To further elaborate, an interview guide is established (see Appendix A) with a few open questions depending on the interviewees’ responses. The interview guide enables the researcher to identify the topics and themes under discussion more effectively (Bryman & Bell, 2011). The interviews are conducted in person with an average length of about 30 - 45 min.

4 ALFA LAVAL CASE STUDY

Within this chapter the case study of Alfa Laval will be analyzed both in numbers but also in form of a presentation of how the company applies its innovation strategy in order constantly demonstrate competitive advantages and be steadily ahead of the competition. The focus will be to examine which type of innovation Alfa Laval is using and what type of strategies employs in order to constantly improve the products offered to the industrial equipment market and at the same time what are the opportunities that rise from the application of the strategies adopted.

4.1 Introduction of Alfa Laval

Alfa Laval is a multinational company founded in Sweden in 1883. The company was founded by Gustav de Laval and Oscar Lamm and was initially named as AB Separator until 1963, year which the present name has been introduced. The company was focusing initially on providing separation solutions to the dairy industry due to the fact that Gustav De Laval has been the inventor of the first centrifugal milk-cream separator among other types of equipment, which was patented in 1894. The innovative technology, upon which the centrifugal separator was based, was the disc stack separation technology which was first introduced in 1890. That has been the first continuous separator in the world using the disc stack technology.

The company has since expanded the business and manufactures and offers a great range of specialized products and complete solutions for the heavy industry. Various types of industries served are within the process industry such as beverages, pharmaceuticals, chemicals, pulp & paper as well as the marine business. Alfa Laval has its headquarters in Lund, Sweden, having subsidiary companies in over 35 countries around the world.

4.2 Alfa Laval in numbers

Alfa Laval is a company that focuses on heavy industry and more specifically in the large-scale operations, such as the energy, food industries and marine industry. The main products that the company manufactures are heat exchangers, separators, pumps and valves intended for supporting the fluid handling business. Alfa Laval has continuously extended its business based on three pillars of technology:

- Separation,
- Heat transfer
- Fluid handling
The aim has been to cover many different industries since the beginning of its operations in 1883. Currently, the products and solutions that the company provides are installed on: oil platforms, power plants, ships, the mining industry, waste water treatment solutions and others. Heat transfer products accounted for 54% of sales in 2013; separation products for 22% and fluid handling products for 10%. Simultaneously Alfa Laval promotes that the key technologies used are extensively in favor of the fight for a better environment on land and at sea. According to the 2013 annual report, the strongest market position is in plate heat exchangers, with an estimated market share of more than 30% of the world. The combined market share for both separators and decanters was in 2013 estimated to be 25-30% of the world market whereas in the fluid handling area the market share is of the range of 10-12% of the world market.

Alfa Laval has had in end of 2013 a number of 16282 employees worldwide, and the steady increase of the people working in the company from 2010 proves the dedication to invest in new recourses that will support the growth of the company and offer creativity and fresh ideas as stated in the annual report of 2013.

Simultaneously, Alfa Laval is proved to be a company that bases it success at R&D and innovation. Even from the very beginning the history of the company is infused by the patents and innovations of its founder Gustav De Laval and the first disc stack separator. In order for the company to achieve profitable growth, “it is crucial to identify new market demands and transform them into new products faster than the competition” (Annual Report 2013), which implies that continuous investments are required in R&D. “Such investments can result in everything from minor adjustments to existing products to the development of new equipment to meet existing and future requirements” (Annual Report 2013). Taking into consideration the latter, and most importantly the fact that Alfa Laval has over 2000 patents registered, one could assume that the growth of the company is based on innovation and high quality products that are constantly upgraded in order to meet customer demands. Within 2013 the company invested more than 70 million Euro in existing product improvements and new product launches.

4.3 Business Model and Innovation within Alfa Laval

The mission of Alfa Laval can be summarized under the following statement, “to optimize the performance of our customers’ processes, time and time again” (Annual Report, 2013). That indicates that the company is customer oriented and supplies solutions and products that support and further improve the productivity and competitiveness of all customers, customizing its solutions in order to address the specific customer needs.

In order to launch new advanced products and maintain constantly updated and refined the complete Alfa Laval product portfolio, the company begins with the established intellectual property and patents. These are used as a basis in order to create technological advancements which are then turned into new products. All patents are generated through constant product development procedures that are implementing different innovation types, such as incremental and radical innovation strategies. This process is extremely important in order for the company to be able to constantly keep the know how inside the barriers of the corporation, in multiple groups and build on that basis in order to further improve the current product portfolio by adding new products or improving the existing ones. It is really important to say that for Alfa Laval the section of HSS, is extremely important since that has been the first product group of the company and the product upon which Alfa Laval has based its success.
A very important notification to be made here is that as a product, a HSS is rather complicated with a lot of small components and requires a constant detailed approach and innovation plan both in incremental innovation and in radical innovation activities.

That is the way Alfa Laval offers value propositions and delivers them to its customers, via constantly updated products or newly launched units.

The product evaluation and development process within Alfa Laval is called ‘ALADIN’. The objective behind the process is that product development should create high value to the end customer in the shortest possible time. The responsibility of all development projects is divided within the respective project manager and the project team members. The project manager and the group have the full overview of objectives and processes as well.

Within the complete HSS organization there are different groups that share specified responsibilities. Among the groups, great importance for the product development projects, have the R&D group, the product management group the project management group for development projects as well as the application experts and marketing / sales development groups. For any new concept or new idea that could lead to a product development process of an existing HSS model, individuals belonging in the aforementioned groups are invited to provide insight, knowledge and in general their opinions based on their knowledge or input from a technology point of view or a market point of view. The interaction between the group members is in a daily basis in order to exchange opinions and align their perspectives regarding the ongoing projects.

Each new product or product development project is constantly evaluated via a steering committee. The steering committee is normally a group comprised of people that have different roles within Alfa Laval, within different departments, like R&D, Sales, Product Management and Business Development. That form of the group ensures that the committee can view each new product or current product development project under different angles, mainly the business perspective and the technological or product perspective approach but also understanding the value proposition behind each improvement. Thus, the steering committee has the authority to decide upon further action and development of a new or existing separator or a potential freeze of the project based on 4 basic pillars:

- Market situation
- Existing technology and technology targets
- Supply possibilities
- Product competiveness and technological roadmap

![Picture no.4: Alfa Laval Basic Pillars](image-url)
The review is based on milestones and the model used can be described as a “stage gate model” where the deciding unity -the steering committee- is constantly and continuously evaluating the project and product development process. That type of development is important in both innovation strategies whether the product development project under discussion is related to a new concept or an existing product improvement. The innovation process is also considered to be rather open within the company since all people involved can discuss and provide their thoughts regarding potential product improvements or provide a completely new revolutionary idea for a new product.

Based on existing observations and future targets, there is an interconnection between the internal development project and the objectives of the product development or innovation process and specific product. The stage model process that is applied supports the constant review of the innovation procedure, both from a technical and business perspective and it permits all members to align on the specifications and requirements. That can be considered as a protocol that Alfa Laval follows in order to ensure the continuous development of its products even if the starting points of each protocol are different. That is the foundation basis of the Alfa Laval innovation process on high speed separators no matter if a new prototype is going to be launched or an improvement on a current model is planned. Specifically the HSS development process is depicted in the following illustration and the new idea, if that involves a completely new project, is initiated from the “concept group” that is focusing in generating new ideas for the next generation separators.
That is an important part of the innovation strategy of Alfa Laval when it comes to the specific product group even though this strategy is not the only one. Even though it seems that this approach is not really an open innovation strategy and the knowledge, decision making and planning is taken care in a specified knowledge center with the necessary competence, Alfa Laval has other strategies to process innovation and provide value to its customers.

One other strategy with which Alfa Laval gains knowledge and obviously technology is by acquisitions. The main reason why Alfa Laval is following this “outside in” process that is supported by the existing Alfa Laval internal procedures is to advance the current product portfolio. Sometimes as well, when there is a need to cover an existing technology gap or even eliminate a possible future competition threat the specific approach takes place. Senior management of Alfa Laval and more especially a higher level management person states in the company’s website that “acquiring companies and technologies is an important part of Alfa Laval’s strategy. Acquisitions take on added importance in a tough economic climate”. More to that, Lars Renström indicates that “the main reason Alfa Laval buys up companies is to add products and technologies to its portfolio” as well as “acquisitions are also carried out to gain access to specific markets”.

However, it is important to note that Alfa Laval’s acquisition strategy in the HSS product group begins once more from an internal process where specific people in the competence centers identify the need for an acquisition and knowledge transfer of an existing small company. Therefore, even the first step of this outside in process has its roots on internal processes and constant innovation drive of HSS products as well as to a continuous monitoring of the market and the customer needs. A really important decision making factor is also the fact that when acquiring a company Alfa Laval saves an important amount in future
R&D and developing project costs that can be redirected in other activities related to product development and establish innovation strategies.

Taking that into consideration one can understand that in order to invest in developing new products or even providing new concepts to the market, Alfa Laval has internal routines to constantly evaluate the existing HSS portfolio. The routines used are used to ensure the product competitiveness and also to identify new market needs and new market demands. New concepts are the result of a constant market research but each new product or a new product differentiation is based upon its feasibility characteristics and value adding proposal. The success of the company is the involvement of different people within the complete innovation procedure, people with different focus characteristics and people with different perspectives. This innovation strategy, blended together with knowledge acquired from external transmitters, create an “alloy” of success in regards to HSS product portfolio.
5 ANALYSIS AND CONCLUSIONS

5.1 Analysis

In this chapter combined knowledge from the theoretical framework, the study case and the interviews will be analyzed in order to answer the questions stated in chapter 1.2.

It is common that within a flat organization, like Alfa Laval, all stakeholders are equal and provide input based on their field of knowledge. Multiple groups are involved in the complete process, expressing their point of view and providing arguments on how the product update should develop or a new product should be generated. The organization setup provides balance and confidence to all stakeholders and team members.

As indicated by one of the interviewees, R&D Manager HSS, “That is a close collaboration between different functions in the company. I mean the outcome of a potential opportunity is taking into consideration multiple parameters one of which of course is the product itself”. That explains why within a flat organization matrix such as Alfa Laval, all related stakeholders based on their expertise and information give insight on how the product should be developed and what the target should be like. Simultaneously the key routines ensure that a constant evaluation of information and development is made through the project management model implementation. That is a key success point and explains why the company has been successful over the years in the specific product range. A clear advantage that derives from the processes selected and from the way the organization itself responds to the needs of innovation processes is the fact that adaptability and flexibility in internal routines and processes drives and supports balance in the decision making process when it comes to product development. At the same time, one can indicate that, the more individuals from different parts of the organization evaluate the development process, especially for new products and concepts, the more possible it is to identify potential mistakes or flaws or even propose better solutions. As indicated by one of the interviewees, PM Project Development Team HSS, regarding new product concepts and the input received from the market, “…of course that is in principle up to the groups that are more close to the market or that are checking for new applications. It is a more complicated process than normal. More people are involved and even more people are evaluating the information received from the market.”

Evaluating from a different perspective another interviewee, Product Development Manager HSS, indicates: “That is a need if we have to prevail in new markets and present new opportunities. I think that is a responsibility mainly of those who are close to the market. Our role is to identify if the new solutions are applicable or what are the new concepts that are going to be our competitive advantages for the next 20 years.” To that extent it can be outlined that the flat organization where Alfa Laval is providing support to the already established routines for a product development processes.

It is really important for the product development routines but also to identify new concepts that all different groups provide input, both technical and also commercial and therefore provide insight to the technological and market needs. The routines are based upon a cross functional product development influence which empowers all stakeholders and is not limited to the traditional R&D areas.
Alfa Laval has established routines and processes in order to manage innovation related to the product range of HSS together with measuring and analyzing the market potential environment signals in order to proceed further in the execution phase of a new product launch or a product update. Market information and knowledge is capitalized during the product innovation processes in order for the new design or concept to bring a revolutionary idea to the field. This information is used on all processes even if those are related to new product launches or to new designs of HSS. Alfa Laval is gathering information from the market which is not only related to pure product performance but also to new aspects that are game changers for the future, such as environmental footprint and others. There is a characteristic approach seen by all interviewees on what the company considers important and also what the target is to offer. Quoting one of the interviewees, Product Portfolio Manager HSS, “That is a matter of understanding the current market and customer situation. I mean we need to understand what our customers need and adapt constantly in their needs...or even better I mean offer them something totally new”. In a complete and organized plan to update HSS products those information are combined closely with new concept and new designs requirements.

In parallel, Alfa Laval works in a dual concept so that the company can be constantly ahead of the competition. While there is a constant strive to continuously improve existing HSS products, there are processes within the R&D department to exploit the market signals in order to launch new, “game - changing” concepts for the future. Those concepts are meant to bring a revolution to the market according to all interviewees and more specifically explained by one of them, R&D Manager HSS, “In terms of product where I am responsible we constantly take care of quality improvements, efficiency improvements and so on. Other groups support us in understanding the applications and the customer needs. It is always the knowledge that is embedded in the company as a complete entity and not in small groups within the company that help us identify new concepts”. It is definite that these internal processes have different needs but at the same time there are different resources assigned to deliver results and propose new solutions and concepts. This indicates that Alfa Laval, as a company specialized in the product group of HSS, continuously works in multiple layers. One layer is related to the constant improvement of existing products and the second equally important layer is to generate ideas of new concepts for the future. It has been proved both in the past and nowadays, that in order for a company to be successful there is a need to combine both types of innovation, incremental and radical. As indicated by one of the interviewees, Product Portfolio Manager HSS, “of course it is a constant attempt to create competitive advantages over other competitors. That cannot be achieved only in a specific way of innovation”. Alfa Laval being the inventor of the HSS intends to continue the legacy of the past and exploit its deep knowledge in order to keep providing values to the market.

Another key point that can help to find and develop innovation faster is acquisitions. Looking back at the last decade it is clear that Alfa Laval combines innovation routines and internal knowledge with external ideas coming from acquisitions. Acquisition strategy can be convenient in order to avoid spending R&D funds when a technology is required and also available in the market. The industrial equipment industry is by nature rather product competitive and in order to keep ahead of the competition, products must create value to the end customers. Providing value to customers and optimizing their processes is the mission of the company which contributes to its branding while generates economic growth.
5.2 Conclusions

Concluding, it is more than necessary that Alfa Laval being a modern company with target of keeping its market leadership and competitiveness has to adapt in every type of change and grasp all opportunities presented in the market. The company succeeds in that by being ambidextrous, optimizing everyday business processes to perfect current products while investing in R&D functions in order to invent new opportunities that will reset once again the circle of the competitive advantage and temporary monopoly.

To achieve this Alfa Laval has developed a flexible structure based on cross functionality, high knowledge levels and diversity. This approach seems to be quite suitable for modern companies which operate in highly competitive markets, a point that is being confirmed by the successful course of Alfa Laval through the last decades. The established flat organization within the company becomes a facilitator under which all products are

As a result from this study, we can conclude that a really effective option for a company that wishes to grow within a highly competitive environment and aims to be profitable is to combine different innovation strategies. Ambidexterity seems to be an important selection and choice that Alfa Laval specifically and companies with the same characteristics make in order to balance incremental and radical innovation strategies. Radical and incremental innovation strategies, when combined, can be a powerful tool towards this direction. However, in the specific case of each company the balance between these two strategies can be different in order to maximize its potential. Both strategies tend to challenge different aspects of the business, either the product core base or even the business model itself as well. In principle, it is important that both strategies are used in a constant attempt to recognise new opportunities in terms of product improvement or to understand the value of new products and then promote a bigger understanding regarding market potential.
This study has only scraped the surface of the different innovation strategies and processes that Alfa Laval is using in order to deliver value to customers by optimizing the existing product portfolio and developing new enhanced products.

Simultaneously, it has explored the correlation of different groups within the company together with their important role in delivering significant market information to help Alfa Laval seize opportunities for the future. The size of this study is insufficient in order to analyze such a complex phenomenon in a multinational company with a flat organization such as Alfa Laval, especially considering its magnitude and worldwide presence.

A recommendation for future works could be the study of how different groups with various cultural mentalities and geographical areas can affect the processes of Alfa Laval in delivering innovation projects.

Another area for further research could be how open innovation is being applied within ambidextrous companies as well as the advantages and disadvantages of this pattern. That type of study could provide an accurate understanding about the concept of open innovation and its effectiveness in modern companies as well as lead to specific guidelines which other companies could engage to.
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Person: Interviewer 1
Function: Product Portfolio Manager HSS

1) Based on the historical facts how Alfa Laval approaches innovation on HSS during the last 50 Years?

The main objective for AL is in fact to have a constantly updated product portfolio that meets customer needs and adds value to the customer processes. I mean that is our mission statement. Now, if I try to check back in time after working in the same company for 30 years, I can see that, for HSS, which is a product group where I have been responsible for many years Alfa Laval tries to evolve and constantly update its units both in performance and robustness. Therefore, we keep a constant link with innovation practices and we try to constantly upgrade the technology used on our products. This is an embedded AL culture here in the HSS group since we have been leaders in separation from the foundation of this company.

2) Has something changed in the process while you work in (R&D/Concept/ Business Development)?

I would say a lot of things have changed but core processes inside the group are in principle the same…I mean…there is always a need to try and identify potential product improvements or product gaps to fill in the portfolio. But the way that is handled internally has not changed drastically. (Laughs) I mean here in Sweden we have been the center of competence in HSS and there is always the nature of the Swedish mentality where we need to align before deciding. Maybe the difference now is that there are documented procedures and before some time it was not exactly documented on who will be involved in the development processes. If I can make a statement on what has drastically changed is the pace to which we need to identify product gaps or the speed we need to align in order to market the new or updated products. The market plays nowadays a more important role…(laughs)…you’ll need to ask people from the business group for that…

3) How do you think Alfa Laval adapts in new market requirements? Does that affect internal AL processes and the way they handle innovation?

Hmm… I mean that is rather difficult for me to answer in a first stage.. My idea is that AL having an established product portfolio can keep up the pace in different markets and fulfill different customer requirements. I think though that the internal processes should be independent of the market requirements. We do have an established process with stage gates that needs to be followed…I mean that is the purpose why it is documented right? I do not see any reason why innovation processes should be different when a product is intended for different markets. I could see a difference only in case of other AL products maybe…

4) What do you think is the innovation focus within Alfa Laval’s separators?

Haha (laughs)…I could not really disclose that…just that I could say that we focus on a constant improvement plan for all HSS models…

5) How does Alfa Laval recognize opportunities for the future regarding market growth in relation to HSS business? Is that linked to the internal processes for HSS development?

That is in principle I would say a constant search for new markets and identification of what customers need. There should be a relation to the internal processes but at the same time that
affects what we target to develop and of course not how we do execute the process. There is a protocol that we do follow and I see no interconnection on how that should be executed. We just need to follow the protocol.

6) According to your opinion is Alfa Laval using incremental or radical concept methodology in HSS product development? What type do you think prevails?

I surely believe that we do use both types…sometimes we do start with a project that requires a specific HSS improvement but suddenly we can find out that this type of improvement is affecting other products on the portfolio. Then we try to generate a new model or a new product and incorporate that change on other models or even better upgrade our portfolio. That is more like a new product development product. Sometimes it is asked that we include a new specific feature or someone proposes a new concept…then it is a clear radical innovation process involved.

7) Is there a specific market focus for HSS and how AL attempts to establish via innovation?

There is not a specific market focus I can say. Traditionally AL has been into the Marine Business but the business and market opportunities are numerous I think we design products to satisfy customer needs in more than a single market.

8) According to your opinion what is Alfa Laval’s competitive advantage within HSS?

Alfa Laval has been the founder of separation technology…separation is in the DNA of people working in the company you could say…Thus, our deep product knowledge which is Combined with application and process knowledge provides a really powerful mixture. Nowadays there have been a lot of attempts to copy AL products…most of them have failed. I mean…it is easy to copy a product but the reason why a product is built in a specific way is embedded in our know how…That comes from years of experience in the business and also from the fact that people in the group are staying in the company for many years, have been part of a lot of development projects and launched a lot of different products…That is our know how! And of course you need to remember that HSS is a rather complicated product. More to that, the fact that we focus on constantly improving and innovating our products and our processes is another competitive advantage taking into consideration the solid basis of knowledge we have acquired through the years.

9) How easy is it to identify new concepts in an already established industrial product such as HSS? Is the application in focus or the product development itself?

That is a matter of understanding the current market and customer situation…I mean we need to understand what our customers need and adapt constantly in their needs…or even better I mean offer them something totally new…I mean that is often the most tricky part. Nowadays our customers do not only focus on the separation performance. They care about “green energy”, reducing their power consumption print or even reduce their waste. These are things we need to consider and these are new horizons of development. I do not see that this is something really difficult to follow. Once upon the time the needs have been to increase separation performance or to achieve higher capacity. Now the trend and the need is more than just that and we are working in identifying those needs and establishing new features that will be embraced by the market. This is a constant innovation process but directed towards new needs.
10) Product development processes are the same for other product groups in the company? Is there a universal AL plan that is followed for all product groups or is the product development model customized only for HSS?

…I do not see any similarities in other product groups and their development processes. I think that the innovation model followed for separation equipment is rather more complicated if you compare it to other products like heat exchangers etc…The decision on how the innovation plan of HSS will look like is not totally a universal decision. That is in principle a decision taken here locally in Tumba where the competence is located for the specific product. However, there is a prioritization plan in close relation to the market opportunities we see centrally and the drivers that are provided by the AL central management. Sometimes it can be the case that due to an acquisition there is a specific strategy that needs to be followed for a specific market but normally that does not affect the HSS product group.

Person: Interviewer 2

Function: Product Manager HSS

1) Based on the historical facts how Alfa Laval approaches innovation on HSS during the last 50 Years?

I think Alfa Laval is an innovative company. It has been from the start…introducing separation technology has been the first step. From that point one can understand that AL is a company that has introduced an innovative way of handling fluids and solids…by separation I mean. After introducing the first separation unit AL has been constantly improving its separation products in terms of performance, robustness, quality and other parameters in order to support end customer’s processes. In that sense I think Alfa Laval is trying to innovate on existing products and alter their capabilities or tries to invent totally new concepts that will be a market changing product.

… so you think that AL is using multiple types of innovation like radical and incremental innovation.

…of course… it is a constant attempt to create competitive advantages over other competitors. That cannot be achieved only in a specific way of innovation. I think that it has been proved before since AL has been the leading company in separation systems…A leading company has to provide game changing solutions and simultaneously constantly improve current portfolio. Therefore, both incremental and radical innovation types are mandatory to prevail in such industrial markets.

2) Has something changed in the process while you work in (R&D/Concept/ Business Development)?

…not of something important that I can think of… I think we constantly strive to find new solutions and new products and also we are currently trying to improve our current products. For sure there are organizational changes but the main perspective is to focus on specific parts of products where we have identified there is potential for improvement. I think that currently there is a more focused perspective on items we have identified to be improved. Simultaneously we are also working on the next 10 year products…we need to target multiple targets to improve our products and our competitiveness.
3) How do you think Alfa Laval adapts in new market requirements? Does that affect internal AL processes and the way they handle innovation?

I think the way it has always been is that AL identifies new markets and works towards in a way to penetrate them. We try to launch products with differentiation but we also try to see what are the different markets’ common points which would permit us the use of same type of products. I think that this supports the focus we have in improving and delivering different products for different markets.

4) What do you think is the innovation focus within Alfa Laval’s separators?

I think we have traditionally focused in accuracy in efficiency and robustness. We need to constantly deliver products that offer better working conditions and support our customer processes. I personally think that efficiency is one of the most important parameters and decreased downtime as well. That is where we aim and focus.

5) How does Alfa Laval recognize opportunities for the future regarding market growth in relation to HSS business?

…I mean that is closely related to what type of products we aim to deliver in the future. What our focus areas is or where do we see in principle AL and separation technology in significant years from now. I think there are of course new applications of focus that provide new challenges. New applications require new products and also that implies that innovation is required. More to that, other ways to recognize opportunities are ways to reduce our customer’s footprint – environmental or not-. There are multiple targets. We need to pursue them.

6) According to your opinion is Alfa Laval using incremental or radical concept methodology in HSS product development? What type do you think prevails?

…I of course it is obvious that AL is using both types of innovation. If I was about to consider one main type I would say that incremental innovation is the main type. The reason is that it is difficult to produce totally new products or to create totally new concepts. Therefore, I mean.. we traditionally focus in constantly improving our products based on new processes or new applications or even we need to test our products in new applications. Incremental innovation is the way to constantly improve existing products.

7) Is there a specific market focus for HSS and how AL attempts to establish via innovation?

…I think that there is no specific market to focus regarding HSS. High speed separators are a key product in AL product portfolio. At the same time we do have an established installed base and an established application range. We aim to provide products for all our customers and all applications we have traditionally served.

8) According to your opinion what is Alfa Laval’s competitive advantage within HSS?

…I mean in a general way, AL provides solutions to all industrial sectors and the competitive advantage is our deep application knowledge and product competitiveness. It is widely known that AL provides products with increased robustness and efficiency and effectiveness and at the same time we aim to constantly improve our portfolio. I cannot be more specific in a technical matter…

9) How easy is it to identify new concepts in an already established industrial product such as HSS? Is the application in focus or the product development itself?
…of course this is not really easy! It is a rather complicated issue and at the same time one has to predict the future market conditions. Identifying new concepts has a new perspective nowadays. That is the difficulty of radical innovation as well…Expanding into new dimensions is our new focus. Not only efficiency…not only effectiveness but for example low power consumption. Our customers need to be more “green”, more environmental friendly…that is our new horizon nowadays…

10) Product development processes are the same for other product groups in the company? Is there a universal AL plan that is followed for all product groups or is the product development model customized only for HSS?

…of course…there is a universal process that we need to follow! Processes are the same for any product group and even if there are significant differences the plans and roadmaps are the same.

Person: Interviewer 3
Function: Product Development Manager HSS

1) Based on the historical facts how Alfa Laval approaches innovation on HSS during the last 50 Years?

Alfa Laval is a traditional innovative company! We do have more than 2800 patents. That means that we are a very innovative company.

2) Has something changed in the process while you work in (R&D/Concept/ Business Development)?

…I am quite new to the company so I cannot really say how the processes have evolved during the previous years. However, since I have a lot of colleagues that are working for more than 30 years, I have found out and understood that our company is investing in innovation. It is embedded in our mentality and we continue innovating and producing innovative products to our customers.

3) How do you think Alfa Laval adapts in new market requirements? Does that affect internal AL processes and the way they handle innovation?

…by innovating and providing solutions, I mean unique solutions of course…So all products are of great importance but we aim to deliver products with specialized features for all markets. Each market has unique characteristics. Of course AL has internal processes in order to identify the points where improvements are needed in specific products, or new market requirements and those processes are in principle changing depending on the new markets or new conditions.

4) What do you think is the innovation focus within Alfa Laval’s separators?

…(laugh)…a lot of different parts are involved in our innovation focus. My perspective is that we traditionally have been focusing in improving HSS functions in favor of customers’ processes. This could be translated in better performance or to keep our product portfolio updated and also upgraded for different applications. We focus in marine & diesel, in food applications among others as well! As you can understand all those applications have different requirements. This has been our focus traditionally. Nowadays I think we try to invent new concepts, present new technologies something like new and green technologies. This is a new concept that is cultivated within Alfa Laval.
5) How does Alfa Laval recognize opportunities for the future regarding market growth in relation to HSS business?

…That is a difficult question. That is a need if we have to prevail in new markets and present new opportunities. I think that is a responsibility mainly of those who are close to the market. Our role is to identify if the new solutions are applicable or what are the new concepts that are going to be our competitive advantages for the next 20 years. I think that substantial small changes and improvements are closely related to application unique requirements. My perception is that for deeper concept changes we are responsible to provide insight and answers.

6) According to your opinion is Alfa Laval using incremental or radical concept methodology in HSS product development? What type do you think prevails?

…I mean..hmm..I cannot really say. I think…(thinks)…if you consider that we constantly provide new solutions to the market but for the most this is in already existing HSS where we constantly improve our processes. I would say that we have a dominating incremental innovation development system. I think that is linked to our processes of course where a lot of parties are involved and we identify new potential. However I cannot disregard our launching processes in new concepts or new technologies. I consider that we do both. Most of our processes are though gradual improvements.

7) Is there a specific market focus for HSS and how AL attempts to establish via innovation?

…I think that we have a tradition in some markets like Marine & Diesel or other industries. But there is not any specific industry we are focusing on. We just need to expand our key technologies in more industries. We are currently in every major industry and we will continue doing that in the future as well. Sometimes we need to focus in some markets and sometimes in others. That depends I think on where we have more opportunities.

8) According to your opinion what is Alfa Laval’s competitive advantage within HSS?

…it is a number of things. HSS is a tradition as I mentioned before within the company. These are embedded in our everyday life which we are following in order to constantly improve our units and technology. I think that the combination of product knowledge and application knowledge is the most important element of Alfa Laval. More to that I think that we try to identify new possibilities in our existing technology and use our knowledge which is embedded in more than one groups inside the company to apply that knowledge.

9) How easy is it to identify new concepts in an already established industrial product such as HSS? Is the application in focus or the product development itself?

…as indicated before…it is a combination of knowing your product and finding out new points of improvement. That is a continuous process I mean. It can be easy or difficult. We need to provide new concepts and innovate constantly both in application and product. That should be our aim and that is what we do. That is why there is a combination in both parameters.

10) Product development processes are the same for other product groups in the company? Is there a universal AL plan that is followed for all product groups or is the product development model customized only for HSS?

…Yes… there are processes we follow. The process is open for more than one groups. Not only product managers or product centers have a saying in the development processes of products. We involve more than one people and more than one groups. This is an open
process in more than one centers so that we get a global input and align internally based on our experiences in various aspects of the business. Each center is focusing in other parts, business, market, application and others…However, this a unified process and in other products this model is followed.

**Person: Interviewer 4**

**Function: R&D Manager HSS**

1) Based on the historical facts how Alfa Laval approaches innovation on HSS during the last 50 Years?

Alfa Laval has been the founder of the High Speed Separator and therefore can be considered the innovator on the specific product. From that point and after, Alfa Laval has constantly developed new patents based on the existing product but at the same time provided new product launches, and I mean High Speed Separator product launches. The same applies in other product groups that slowly have been introduced into the portfolio of the company. Therefore, innovation is in the core of Alfa Laval’s success!

2) Has something changed in the process while you work in (R&D/Concept/ Business Development)?

I have been working in the company the last 4 years and in principle I have not observed significant changes in the daily processes. Before coming here in Sweden I have been working in the Alfa Laval site in India and of course there have been differences.

In what way you mean differences?

…I mean, differences that have to do with daily activities or different ways which projects are handled and so on…I mean… more like cultural differences that can be observed in different places in the organization. So when I came here there has been no difference in the protocol and processes it is just a difference in the way things are handled…

3) How do you think Alfa Laval adapts in new market requirements? Does that affect internal AL processes and the way they handle innovation?

I am not really sure…The first way to think of is that Alfa Laval is constantly driving the evolution of all products in the portfolio. That is the way to be competitive, or at least that is one of the ways to be competitive in such demanding markets. In that way internally we are handling small pieces of the complete picture I would say…For example here in Sweden we are responsible for the development of the High Speed Separators and our daily duties involve the development in material, efficiency, design of the specific product. There are different group members in our group that are responsible for a small piece of the complete puzzle. We have dedicated internal processes and resources to find new innovative solutions in parts of the product that we consider need further development or that we consider that will provide us a significant advantage over the next years. Therefore, in order to come back to the beginning of the question I think that nowadays, handling innovation is far more targeted and also far more specified, especially if that includes partial improvement of an existing product. Obviously, the same applies where a complete new concept is introduced but then more issues need to be resolved and more perspectives need to be taken care of, like the business perspective or even understanding the needs of the market etc…

4) What do you think is the innovation focus within Alfa Laval’s separators?
That is something really simple and really complicated at the same time…(laughs). I mean it is not really easy to define on single parameter as a focus for Alfa Laval’s high speed. The outcome of any improvement, produced by innovation, is to provide a constant competitive advantage against competition and improve our market position in multiple markets. …I mean not all markets are the same and not all products need the same changes…or improvements…I cannot really say more than that…

5) How does Alfa Laval recognize opportunities for the future regarding market growth in relation to HSS business?

That is a close collaboration between different functions in the company…I mean…hmmm…(stands still for a minute and thinks)….I mean the outcome of a potential opportunity is taking into consideration multiple parameters one of which of course is the product itself…In principle an outdated product or a better product from competition…(laughs)…or even an alternative technology can be barriers to a growth target in a specific market…In a more general way it is the responsibility of the marketing and business teams that are normally closer to the markets to let us know what are those potentials and in a common discussion we come into conclusions on how we can evolve our products to match that specific market needs…

6) According to your opinion is Alfa Laval using incremental or radical concept methodology in HSS product development? What type do you think prevails?

…(laughs)…it is for sure that we do use both types of innovation during the complete product development process… I think it all depends on what type of product we would like to offer to the market. Sometimes it is needed and it is essential that we provide a completely new and innovative solution for a specific part of the product. The new design then starts from scratch and the need to create something totally new includes a radical innovation to be involved. In other cases we do have a small design change that we consider that will make a substantial difference. Nowadays the latter is more on more common and therefore I consider that this type of innovation more common. More to that, it is also easier to handle rather than trying to handle a completely new product made from the beginning … I mean a completely new concept…

7) Is there a specific market focus for HSS and how AL attempts to establish via innovation?

…I would not say that there is a specific market…High speed separators are a specific product or equipment for multiple markets and our focus is to improve it as much as possible. Innovation is considered also in the ways we deliver our products and more…not only in product development as such…

8) According to your opinion what is Alfa Laval’s competitive advantage within HSS?

Simply saying…it is the fact that we try to improve daily all aspects of the specific product and being the pace maker of the industry for high speed separators, having the knowledge and the competence we deliver units that add new values to the market and customer needs. In plain words… we aim to keep the competence and extend our product advantages in existing and new markets.

9) How easy is it to identify new concepts in an already established industrial product such as HSS? Is the application in focus or the product development itself?
Not easy at all...(laughs)....I think the way to do so nowadays is to think outside of the common way of thinking.. Outside the box if I could say so...That is why we try to deliver new ways of thinking and new values to be delivered to our customers. All in all I can say that we have always a mixture of application and product as well as a focus in the value added to the specific market...In terms of product where I am responsible we constantly take care of quality improvements, efficiency improvements and so on... Other groups support us in understanding the applications and the customer needs...It is always the knowledge that is embedded in the company as a complete entity and not in small groups within the company that help us identify new concepts.

10) **Product development processes are the same for other product groups in the company? Is there a universal AL plan that is followed for all product groups or is the product development model customized only for HSS?**

In principle yes... I can say that there is a unified code or way of handling projects in all aspects of the product portfolio. The way to do so is the same for all categories of products. The plan is unified so that in all steps of the process the improvements are measured and quantified...from more than one teams. The same way Alfa Laval has the possibility to identify improvements in all products and involve all relevant groups in the innovation process.

**Person: Interviewer 5**

**Function: PM, Project Development Team HSS**

1) **Based on the historical facts how Alfa Laval approaches innovation on HSS during the last 50 Years?**

I consider that it has been considered as an idea that needs to be applied in every aspect of the daily life within Alfa Lava. I think that innovation is a mentality included in all aspects of the everyday life. It is also included in a way on Alfa Laval’s statement where Alfa Laval intends to optimize our customer’s processes time and time again... that can be only achieved by constant innovation.

2) **Has something changed in the process while you work in (R&D/Concept/ Business Development)?**

...(thinks)...I do not think so.. I mean Alfa Laval had always the need to develop new products and at the same time create new standards...therefore I see that the policies of work have been the same over the years.

3) **How do you think Alfa Laval adapts in new market requirements? Does that affect internal AL processes and the way they handle innovation?**

Of course by launching new products and new values to existing and potential customers...That is the only way to find, expand and keep new markets...

4) **What do you think is the innovation focus within Alfa Laval’s separators?**

I consider that the times have changed recently and there is a need to improve existing units in more than traditional aspects. Recent changes in the environmental policies are not to be disregarded and therefore we try to significantly introduce new aspects in the existing models. Therefore in a way we expect to deliver new values outside the existing values we normally deliver.
5) How does Alfa Laval recognize opportunities for the future regarding market growth in relation to HSS business?

Of course that is in principle up to the groups that are more close to the market or that are checking for new applications. It is a more complicated process than normally. More people are involved and even more people are evaluating the information received from the market.

6) According to your opinion is Alfa Laval using incremental or radical concept methodology in HSS product development? What type do you think prevails?

I would consider that Alfa Laval is using all types of innovation in order to deliver additional value to the end customer…We have established processes that are supporting both innovation types and our efforts to constantly improve our products and also introduce new products in the market.

7) Is there a specific market focus for HSS and how AL attempts to establish via innovation?

Not that I could say. In principle our target is to deliver and serve more markets. That is why we do have a so widespread portfolio and HSS is one of those products.

8) According to your opinion what is Alfa Laval’s competitive advantage within HSS?

For sure I would say our deep knowledge on the product…we must not forget that we are the inventors of the HSS… and our constant thrive to improve existing units and implement new technologies.

9) How easy is it to identify new concepts in an already established industrial product such as HSS? Is the application in focus or the product development itself?

My impression is that it has been the same over the years. Not that big changes have happened. The differences are based on the needs of each decade, market etc. In an overall base I would say that nowadays the concepts are more difficult to develop but small improvements are also hard to develop as well.

10) Product development processes are the same for other product groups in the company? Is there a universal AL plan that is followed for all product groups or is the product development model customized only for HSS?

The processes are unified and the idea is that all products are undergoing an evaluation from more than one groups within the company. In that way we keep track of the progress and also get different angles of the same development project from more people. The same plan is applicable for HSS and we follow it.