IIIEE Theses 2006:08

The Emergence of a Bioenergy Company

A business case examining TallOil AB

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Thesis for the fulfilment of the
Master of Science in Environmental Management and Policy
Lund, Sweden, October 2006

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ISSN 1401-9191

Acknowledgements

There are many people whom I need to show gratitude for this enriching year in Lund and above all for the successful completion of this thesis. I will thank them personally. But here I would specifically like to mention one group of people, namely the employees at TallOil.

I thank the company's president Mr. Henrik Lundberg, who gave the necessary approval for this project. Also all the time he spent with me during the interviews was much more than I had ever hoped for.

I thank Mr. Tomas Kåberger for giving the initial consent and opening the door to the project at TallOil. His assistance in analysing the answers to the questionnaires increased the value of this thesis considerably.

I thank Mr. Magnus Ånstrand for co-ordinating the project on behalf of TallOil, helping out with practical matters and answering my e-mails even during the days when he did not work.

I thank all the other interviewees for their time and help: Mr. Anders Borg, Mr. Bo Hektor, Mr. Göran Forsberg, Mr. Lars Petrini and Mr. Mårten Zakrisson. I also thank Mr. Lennart Ljungblom from Novator for the interview.

I thank the TallOil employees for the participation in the survey, which was vital for the quality of this thesis.

The time I spent in the company was relaxing, a learning experience and a lot of fun. Thank you TallOil team.

Abstract

The EU needs to be less dependent on fossil fuels. One of the alternatives is bioenergy. The Bioenergy industry is still emerging and companies within it may face different obstacles. This thesis presents a chronological analysis of the foundational process and development of a bioenergy company named TallOil, based in Sweden. This company is one of the leading suppliers of biofuels in Sweden and has experienced rapid growth in the recent years. As such it could represent one of a new "breed" of market actors that take the bioenergy sector from a predominantly niche status to the energy market mainstream.

The company's development is presented chronologically along with indicators of business success such as net sales and the profit since the inception of the company. Moreover, utilising business, sociological, marketing research, management and similar literature, the "nature" of the organisation and its beliefs and norms are examined, the reasons that led to its foundation are elaborated, and the key role of the founder (Mr. Lundberg), his entrepreneurial drive, vision and attitudes to business and its inherent risks are researched. The organisational culture and strategic orientation of the company are examined within this thesis as well.

Being active in a new industry, the company also has to fight for legitimacy in the eyes of society, the market, its competitors and political spheres. The inherent legitimacy of the industry (meaning the acceptance of the industry by its environment) is analysed at four levels: organisational, intraindustrial, interindustrial and institutional.

This analysis indicates that TallOil emerged and has grown on the entrepreneurial drive of Mr. Lundberg. In the process he has been utilising the support Svebio (the Swedish biomass association) and Novator (a publishing and consulting company in the field of bioenergy) have been offering to the bioenergy industry. These two organisations also seem to form an important part of TallOil's bioenergy network.

As far as the legitimacy is concerned, positive factors supporting it were identified at all four levels, but so were the negative factors resisting it. It appears that great deal of resistance TallOil has been facing comes from interindustrial and institutional level.

Furthermore the results show that entrepreneurial and creative culture (adhocracy type of culture) is the dominant one in TallOil. Strong traits of innovative behaviour are also present in the strategic orientation, in which proactiveness appears to be the prevailing dimension. But among other things, this may also indicate that some prudence is needed in exercising proactive behaviour, because outcomes of such behaviour are not necessarily positive.

Executive Summary

This thesis is a business case of a bioenergy company called TallOil, which has its headoffices located in Stockholm, Sweden. It is apparently a very successful company. In terms of turnover it is for the moment the leading biofuel supplier in Sweden and the largest part of the assortment consists of TallOil Blend (a biooil based on tall oil pitch) and propellants (ethanol and biodiesel). The turnover exceeds € 85 million and it grew by 297% in 2004/2005. The growth is still very steep and the company is in the middle of an international expansion and an intense investment cycle.

The EU is becoming increasingly dependent on external energy sources, has a limited scope to influence energy supply conditions and has difficulties in meeting environmental commitments under the Kyoto protocol. Hence the need for renewable energy sources is increasing, and a company like TallOil makes an interesting study object. This business case can serve for better understanding of the dynamics of bioenergy companies and it is part of a larger project called "Development of Bioenergy: from Niche to Mainstream" running within the IIIEE work package of the Bioenergy Network of Excellence.

This thesis focused on the foundation and development of TallOil. The research approach consisted of the following phases: literature review, preparation for fieldwork, conducting the field work, analysis of data, and conclusions and reflections. The fieldwork was the phase where the bulk of the data was collected, using two tools: interviews and questionnaires. Interviews allowed in-depth research with open-end questions and the questionnaires allowed efficient collection of data from a large number of respondents. An important source of data was also company documentation in the form of annual reports.

TallOil was founded in 1993. The name of the company is derived from tall oil pitch, one of the company's earliest offerings. The co-founder and co-owner Mr. Lundberg, basically the leader figure in TallOil, had been engaged in bioenergy already in the 1970s, when he also co-founded Svebio (the Swedish bioenergy association) and Novator (a consultancy company), two organisations which he later had big use of when he decided to continue his entrepreneurial way of life by getting involved in other ventures (which finally lead to the creation of TallOil).

The entrepreneurial drive of Mr. Lundberg was the necessary prerequisite needed in order for TallOil to be founded. Along with this entrepreneurial drive there has also been a strong influence from the power of vision. He clearly is a bioenergy believer and in his vision bioenergy plays an important role as an energy resource. Nevertheless, even if he can be described as a bit idealistic type of entrepreneur, he still recognises the importance of making profit, because without profit it is not possible to realise the vision. Furthermore, he is someone who is ready to accept risks and challenges connected to risk. The initial product, tall oil pitch, turned out to be exactly that kind of product which was oriented into a new niche market and offered a favourable risk-reward relationship. Consequently it was only natural for him to found TallOil.

Ever since the beginning of his bioenergy ventures in the 1970s, Mr. Lundberg has faced positive and negative factors that also influenced the legitimacy of his ventures, including TallOil. In this thesis the theoretical framework by Aldrich and Fiol was used, dividing these factors into four levels of analysing legitimacy: organisational, intraindustrial, interindustrial

and institutional.[1] The analysis showed that most of the negative factors appeared at the interindustrial level, following by the institutional level. The positive factors did not quantitatively appear to dominate a specific level.

The fact that most of the negative factors appeared to be at the interindustrial level does not automatically mean that this level is also the most difficult to deal with, because the quantity is not decisive. Nevertheless, among all the negative factors, Mr. Lundberg pointed out the resistance at the interindustrial level as the strongest one, primarily from district heating companies but also from other industries which were affected by the new taxation. These industries did not act directly against companies like TallOil, but their actions affected the political decisions. In such cases TallOil or Mr. Lundberg were affected directly. The negative factors at these two levels are presented in the table below.

Table Negative factors at the interindustrial and the institutional level

Interindustrial level	Institutional level
• Lethargy in district heating companies • Peat had bigger legitimacy than forest fuels • Resistance from some forest companies • Nuclear energy • Behaviour of big energy companies • Lack of knowledge about bioenergy in other industries and resistance against the current energy policy	• Politicians and policy (changing preferences, unstable rules of the game) • Government's involvement in nuclear energy • Customer structure that allows political influence, political decisions are made instead of only economical • Lack of text-books and good teachers regarding bioenergy in educational institutions

There is also an important external factor that affects all four levels of analysis, namely oil prices. During the different periods of high or low oil prices since the 1970s the intensity of positive or negative factors has also changed accordingly. Another external factor has been the environmental issues, but their effect does not yet appear to be as influential as that of oil prices. However it may to some extent counteract the negative effect of higher oil prices.

Positive and negative factors are dynamic, meaning that positive factors are not always positive and negative factors are not always negative. An industry that at one point of time strongly resists the new industry at the interindustrial level can become a part of it itself and become a strong driver at the intraindustrial level. Like for example some companies in the forest industry, who identified a large potential in bioenergy and entered the business themselves, whereas some of them remained outside and see it as a threat for their activities (e.g. due to competition for raw materials).

When fighting for legitimacy TallOil has not moved up the four levels of legitimacy hierarchically. Sometimes political support (being the institutional level), was needed to deal with the challenges at other levels. Furthermore, once the legitimacy was to some extent gained, it could be lost again (e.g. due to low oil prices). Thus it is also necessary for a company to retain legitimacy and not only focus on obtaining it. In each case, a company does not need to be alone in this process. Svebio and Novator have been very useful in making it easier for TallOil to meet the challenges.

[1] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation. *The academy of Management review* 19,4: p. 645 – 670.

In fact Svebio and Novator appear to form a part of TallOil's initial bioenergy network. The three organisations are however different. TallOil is a commercial organisation, Svebio a non-proit organisation and Novator is somewhere in the middle. However, one of the recommendations for further research is to look deeper into TallOil's bioenergy and knowledge network.

An explanation why TallOil is a successful company can also be offered by the results obtained with the questionnaires. The subjects of this survey were organisational culture and strategic orientation. The results have shown that the prevalent culture is adhocracy (dominant attributes in this type of culture are entrepreneurship, creativity and adaptability). As far as the strategic orientation is concerned, proactiveness shows the strongest traits. This indicates again that innovations, creativity and searching for new opportunities is high on TallOil's agenda. But it is recommendable to be watchful when exercising such behaviour and compare the costs with the payoffs. In this sense traits of analytical behaviour which also appear in the strategic orientiation (following proactiveness) may therefore turn out to be very important for TallOil's performance.

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1 Introduction

The European Commission published a green paper 'Towards a European strategy for the security of energy supply' in which three alarming points emerged:[2]

- The EU will become increasingly dependent on external energy sources; dependence will have reached 70 % by 2030.
- The EU has very limited scope to influence energy supply conditions, where erratic increases in the price of oil and gas disrupt European economies.
- The EU is in a very hard position to meet environmental challenges and commitments under the Kyoto Protocol.

The utilisation of bioenergy in Europe opens many opportunities to lower greenhouse-gas emissions, improves fuel security and independence, and creates many other positive effects, such as rural development and new employment opportunities. According to the Biomass action plan the EU, if it made full use of its potential, would more than double biomass use by 2010 to about 185 mtoe.[3]

The rise of bioenergy structures, parallel to the existing fossil fuel markets, is expected. The bioenergy sector appears to be poised at the beginning of the exponential growth curve and there is a huge European business opportunity associated with this growth.

Different countries in Europe have so far reached different levels of using bioenergy. Sweden counts to the more progressive ones in this respect, with one fifth of the primary energy demand being covered by bioenergy. This share is expected to increase to 40% by 2020.[4] However, even in Sweden this industry is still emerging and is at best juvenile, but still long from well established.

In this thesis the Swedish company TallOil AB is presented. It is one of the leading biofuel and bioenergy companies in Europe with a turnover of more than € 85 million in 2004/2005 (an increase of 297 % compared to the period before).

TallOil originates from the forest platform (which is the most important source of bioenergy in Sweden), because tall oil pitch, one of the company's earliest offerings, is a by-product in Kraft pulping processes. It is indeed a successful company, which has had to face many difficulties during its existence and still faces some them today. On the other hand the opportunities were also seized, but it has not been easy to identify them. The story of TallOil is closely related to the entrepreneurial life-story of its founder Mr. Henrik Lundberg and to his activities before 1993, when TallOil was founded.

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[2] European Commission. (2001). *Green Paper – Towards a European strategy for security of energy supply.* Luxembourg: Office for Official Publications of the European Communities.

[3] European Commission. (2005). *Communcation from the Commission – Biomass action plan.* Brussels: European Commission.

[4] UNDP – United Nations Development Programme. (2000). *World energy assessment.*

1.1 Audience

This thesis is primarily a business case. It is a story about a seemingly successful company in an emerging industry, which is linked to some existing industries and potentially competing with some. While the thesis may be interesting for a wider audience, it is primarily aimed at:

- Bioenergy Network of Excellence and the R&D community, because better understanding of the dynamics of companies in the bioenergy sector is required, if this community is to be better linked with such companies.

- The company TallOil itself, because this research can serve as a reflection on their work

It is also anticipated that this thesis will be summarised into a 'business school' type case for educational programmes at the IIIEE and similar institutions involved in management/business and environmental courses. These business educators could reach additional potential audiences such as actors in TallOil's business, associated product chain members, financiers, venture capitalists and similar. However, the signed non-disclosure agreement bounds the distribution of this document and the forms of such dissemination.

1.2 Background

TallOil is a part of the ever larger bioenergy industry in Sweden which is perceived to have big potential to become an important player in the Swedish economy. In this chapter some basic data are going to be presented in order for the reader to get the picture in what kind of environment TallOil exists in.

1.2.1 Biofuels in the Swedish bioenergy system

Sweden is a forest rich country and therefore it is not surprising that forest industry is of great importance to the Swedish economy. Practically all biomass used in Sweden originates from the forests, which are consequently the key sector for the biofuel market.[5] Forest platform has therefore been crucial for the development of the Swedish bioenergy system and also gave birth to TallOil.

The largest user of biofuels in Sweden is the district heating sector.[6] It supplies over 40 % of the heating in buildings.[7] Figure 1-1 presents the use of biofuels for district heating.

[5] Ericsson, K., and L.J. Nilsson. (2003). International biofuel trade – A study of the Swedish import. *Biomass and Bioenergy* 26: p. 206.

[6] Actually the largest user of biofuels is the forest industry, but since it fuels itself and provides only a small portion of useful energy to the others it is not taken into account in this section.

[7] Ericsson, K., and L.J. Nilsson. (2003). International biofuel trade – A study of the Swedish import, p. 206.

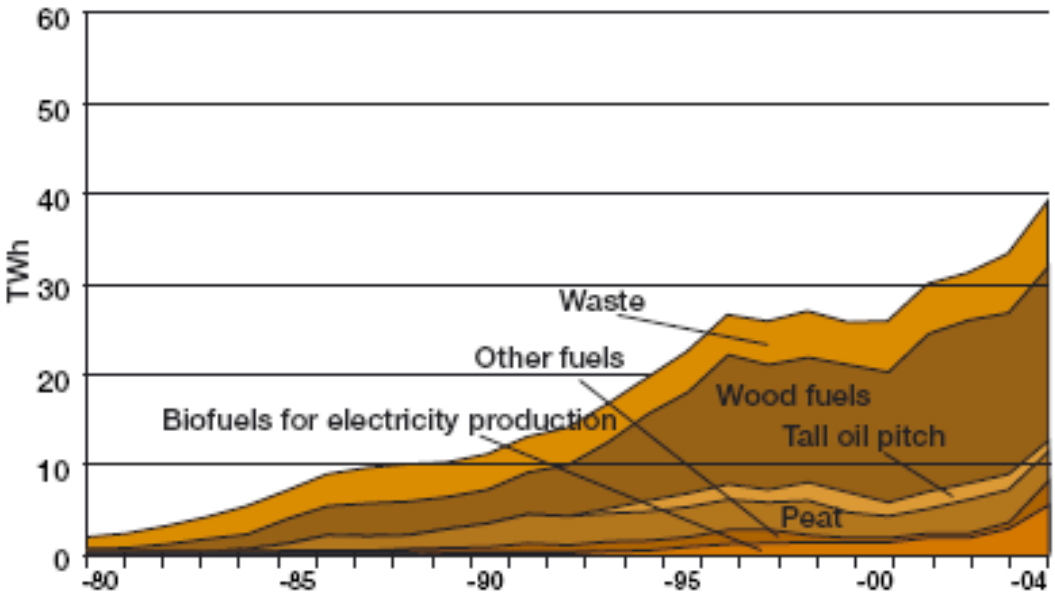

Figure 1-1 Use of biofuels, peat etc. for district heating, 1980 – 2004[8]

If biofuels for electricity production are excluded, then it can be seen that around 33 TWh of different biofuels were used for heat production in district heating plants in 2004. The breakdown of these 33 TWh in energy sources is the following: wood fuels 19 TWh, waste 7 TWh, peat 3 TWh and other fuels over 2 TWh.[9]

Of all these sources, wood fuels have faced the most intensive increase since 1980. These fuels are mainly in the form of felling residues, by-products from the forest products industry and increasingly in the recent years processed fuels (such as briquettes, pellets and powder)[10]. But during the 1990s the share of all biofuels in district heating increased substantially and they account for more than 44%.[11]

On the other hand, small-scale use of biomass for heating of single houses has also a long history in Sweden and is especially common in less densely populated areas. In this case the dominating fuel is firewood, but in the last years a market for small-scale use of wood pellets has developed rapidly.[12]

To repeat again at the end of this chapter, it is clear that forest biomass is by far the main source of biomass in Sweden, originating from the very extensive Swedish forest platform and TallOil originates from this platform as well.

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[8] STEM – Energimyndigheten [Energy authority]. (2005). *Energy in Sweden 2005*. p. 45.

[9] STEM. (2005). *Energy in Sweden 2005*. p. 46.

[10] STEM. (2005). *Energy in Sweden 2005*. p. 46.

[11] Ericsson, K., and L.J. Nilsson. (2003). International biofuel trade – A study of the Swedish import, p. 207.

[12] Ericsson, K., and L.J. Nilsson. (2003). International biofuel trade – A study of the Swedish import, p. 207.

Box 1-1 Definition of bioenergy

It is important to know, what actually bioenergy is if companies dealing with it are supposed to be identified. Svebio, the Swedish bioenergy association, uses the Swedish standard to define the most important terms (Svebio, 2006a):

- Bioenergy is defined as energy extracted from biofuels.
- Biofuels are defined as fuels, where biomass or peat are the input material. Biofuels can go through a chemical process or conversion.
- Biomass is material of biological origin that has not or just to a small extent been chemically converted.

Hence of the above definitions it can be seen that while biomass practically cannot be treated chemically to count as biomass, it can later on still be chemically converted in biofuel production.

An issue that creates confusion is the status of peat and as we will see later (e.g. chapter 5.2.3), its status also affected the emergence and growth of TallOil. In Sweden peat is namely regarded as a renewable source of energy and this is also why it is considered as an input for biofuel production. Moreover, if peat is used to produce electricity, it gives the producer the right to obtain the so called el-certificate (STPF, 2005). This certificate states, that the electricity is produced using renewable energy sources.

On the other hand, the EU emission trading system for carbon dioxide considers peat as a fossil fuel, and there is a risk, that coal will replace it on the Swedish energy market (STPF, 2006). Before that it was namely required to pay only sulphur tax when combusting peat, but now also emission allowances for carbon dioxide must be obtained (STEM, 2005). This of course affects the competitiveness of peat as an energy carrier.

So looking at the present situation, there is a special kind of confusion in Sweden, because the Riksdag has placed peat in the el-certificate system as a renewable source of energy and also in the EU emission trading system as a fossil fuel (STPF, 2005).

Returning to biofuels in general, they can be divided into different groups. Svebio uses the following classification (Svebio, 2006a):

- Wood fuel
- Liquors in pulp industry
- Agricultural fuel
- Biofuel from organic waste
- Peat

The biofuels are used for heat production, electricity production or as liquid biofuels to run vehicles. As already mentioned, peat is a fuel where opinions about its 'renewability' differ. It is indeed renewable on a longer run than other renewable sources of energy. EU considers it to be a fossil fuel.

1.2.2 TallOil in the Swedish bioenergy system

In previous chapter we could see in what kind of environment TallOil and other Swedish bioenergy companies exist in. In this chapter the position of TallOil in this environment will be presented.

The number of companies dealing with bioenergy is changing and therefore a static overview cannot be valid for a longer period. Novator mapped these companies and the result for the year 2003 is presented in table 1-1 below. This data has of course changed in the mean-time but it can still give a rough impression of the distribution between various types of enterprises (another, slightly different mapping was done in 2006 and is presented in figure 1-2).

Table 1-1 Bioenergy companies in Sweden in 2003[13]

Type of enterprise[a]	Heat/power supply	Fuel supply	Consulting	Information[b]	Equipment supply
No. of companies	23	28	9	5	74

Note: a) some companies run more than one type of enterprise and can therefore appear in more cells. The numbers can therefore not simply be summarised in order to get the total number of companies at that time.
b) This includes research, education, exhibitions, fairs.

Most of the companies in the bioenergy business were supplying equipment, which is very important in order to overcome the technological barriers connected to implementation of bioenergy. By doing so, Sweden has also created a strong export sector to satisfy some of the emerging demand for such equipment in other countries. TallOil is in this case a fuel supplier, but the daughter companies TPS and VTS are also involved in information (research), consulting and equipment supply.

In year 2006 Novator made another statistic of Swedish bioenergy companies, but this time only of the biofuel suppliers. The statistic is shown in figure 1-2.

[13] Modified from Novator. (2003). *Företagssfären* [Company sphere]. http://www.novator.se/business/index.html [19.7.2006].

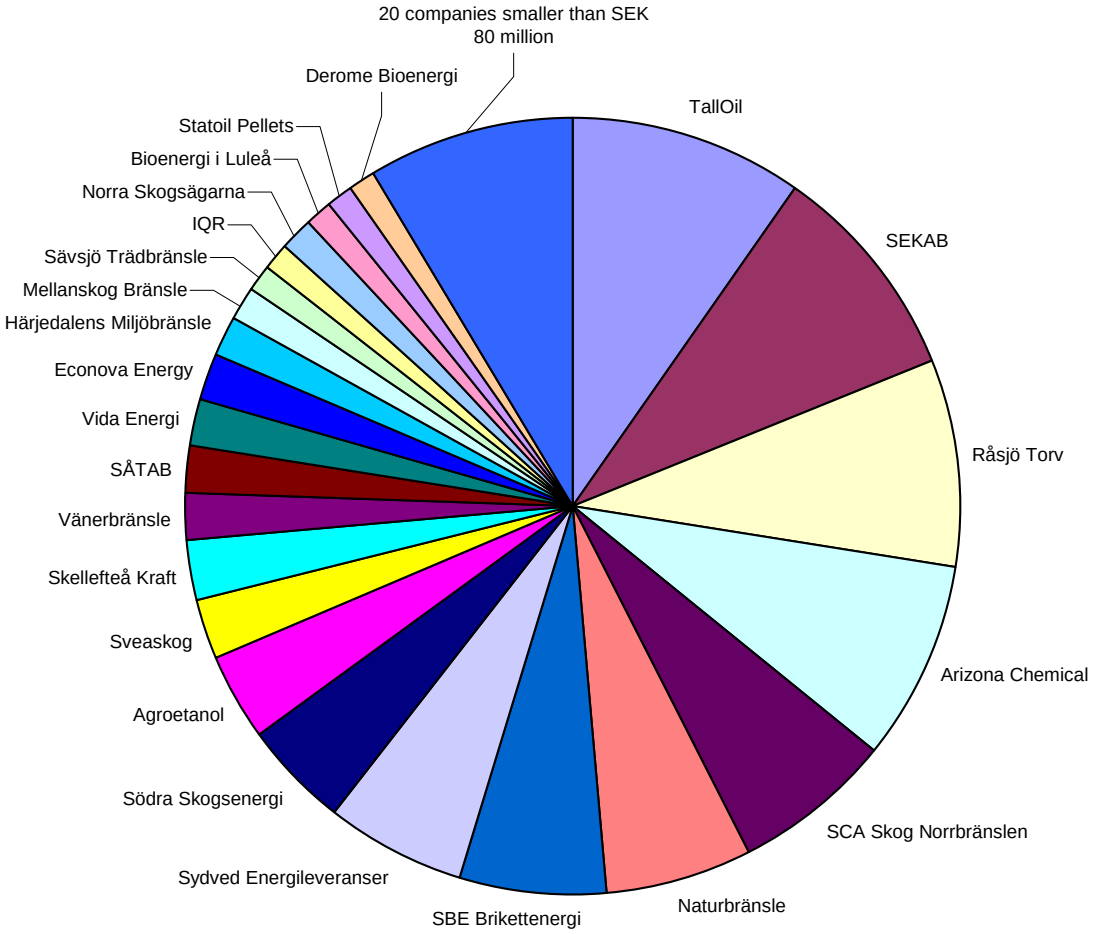

Figure 1-2 Suppliers in Sweden in 2005 ranged according to their turnover in biofuels[14]

Novator's[15] explanation of the statistic is that TallOil is for the moment leading biofuel supplier in Sweden and the largest part of the assortment consists of biooils and propellants. SEKAB, Svensk Etanolkemi AB, No. 2 on the list, is the biggest supplier of ethanol on the Swedish market. Råsjö Torv, a big supplier of peat, was No. 1 in 2004. Although it fell on the third place, its turnover has still increased by five per cent.

However, if these companies are compared in terms of delivered GWh, the order is a bit different and is shown in figure 1-3.

[14] Novator. (2006a). Biobränsleleverantörer 2005 [Biofuel suppliers]. *Bioenergi* 1-2006: p. 12 – 19.

[15] Novator. (2006a). Biobränsleleverantörer 2005 [Biofuel suppliers], p. 12.

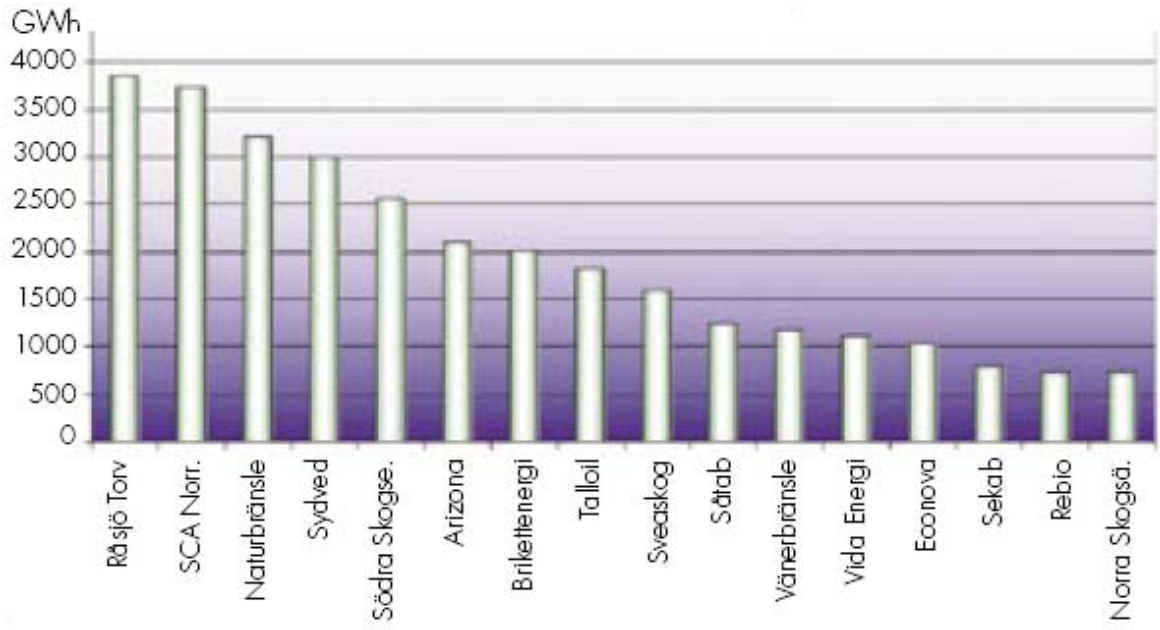

Figure 1-3 The biggest biofuel suppliers in terms of delivered GWh in 2005[16]

Råsjö Torv, No. 3 in the figure above, supplied most of the GWh in 2005. TallOil, having the biggest turnover, is No. 8 on this list.

There are 45 companies on Novator's list for 2005, which is five more than in 2004, but there are smaller players that have not been included in the research. Nevertheless, the research shows, that the listed 45 companies have in 2005 increased their turnover by SEK 1,600 million to SEK 7,100 million.[17] Bioenergy business is hence in the phase of substantial growth in Sweden and TallOil is a part of this trend.

1.3 Problem Definition

At the present time there are very few real-life industrial cases documenting how bioenergy companies are emerging, the forms they take and how they grow. A study in this area can help clarify the issues in an industrial context and improved understanding of these issues can also provide knowledge for new entrants in the industry.

Despite the opportunities that bioenergy offers due to its rapid expansion potential, the picture remains unclear how and under which circumstances bioenergy companies emerge, grow and make decisions. Decisions about future investments, key business activities in the short term and development of business areas in the long term are influenced not only by the internal economic variables, but also by the environment in which a bioenergy company exists in. In the Nordic countries businesses appear to be arising from forest industry platform (which is the case with TallOil as well). There is still uncertainty in this environment posing challenges for actors involved in the bioenergy industry. A significant lack of knowledge regarding the development of the companies trading in bioenergy may also constitute a significant barrier to the uptake of bioenergy solutions throughout Europe.

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[16] Novator. (2006a). Biobränsleleverantörer 2005 [Biofuel suppliers], p. 13.

[17] Novator. (2006a). Biobränsleleverantörer 2005 [Biofuel suppliers], p. 12.

1.4 Goals and Research Questions

This thesis forms part of a larger project called "Development of Bioenergy: from Niche to Mainstream" running within the IIIEE work package of the Bioenergy Network of Excellence.[18] This project has two goals. The **primary goal** is clarifying the areas in which a knowledge network can be important to the dynamically growing bioenergy sector. The **secondary goal** of the project is to provide industrial intelligence in order to make the entrance to the market or the expansion of existing markets easier.

Hence the objectives of this thesis within these goals is to provide a real-life case of an apparently successful Nordic bioenergy company examining business development pathways, values and principles embedded in the foundation and running of the company, the basis on which the company was founded, the role of other actors in the business environment it exists in and interactions with them. The two research questions are:

- Under which circumstances did the company TallOil emerge and how has it developed?

- What are the positive and negative factors that have been influencing the existence of TallOil?

1.5 Scope and Limitations

For this thesis only one case study is chosen. The reason for this is that the research is an in-depth research and more companies would be difficult to be researched within the given period of time. The chosen company had to be a successful company that has been active in the bioenergy sector for several years, because experience gathered in such a company is vital for the main project Development of Bioenergy: from Niche to Mainstream.

Geographically the scope of the thesis is Sweden, because this country counts as a leading country in the bioenergy sector. The research work was done entirely in Sweden with all the interviews conducted in Stockholm where the headquarters are. However this does not entail that the companies operations outside Sweden were neglected if they turned out to be important to fulfil the objectives.

The considered time frame was not the same as the length of TallOil's existence, which is from 1993. Because TallOil is a result of occurrences that took place before 1993, the research encompassed also those years. Basically the story of TallOil started in the 70s when Mr. Lundberg started his first bioenergy company called Novator.

The scope is also on the picture from inside the company, meaning that the potential interviewees outside were not included in the research (with an exception of Mr. Ljungblom, the present manager of Novator and an ex-associate of Mr. Lundberg).

An important limitation in the work was the sensitivity of the work for TallOil which was in the time when the research was done in a build-up phase. Issues regarding the strategy were not disclosed and figures that were not available in public material (such as annual reports)

[18] The whole project is divided into two parts. The first part is this thesis, i.e. a business case of a bioenergy company. The second part will use the results from the first part when the European market is scanned in order to obtain to similarities and differences of key industry parameters in the participating countries. Furthermore, research work required to overcome market and institutionally related barriers to the expansion of the European bioenergy companies will be outlined.

were not given. The primary concern in the company was not to disclose anything that could affect third parties. For this purpose a non-disclosure agreements was signed and respected. This was to be expected but it is assessed that the quality of the work and the findings were not seriously hampered.

1.6 Overview

The overview of the thesis is given to the reader in order to get a quick picture how the thesis is structured in what each chapter contains.

Chapter 1 gives the introduction and explains the background of the researched topic. The position of TallOil and biofuels in the Swedish bioenergy is presented. The audience is defined along with the research problem, the goals, the scope and the limitations of the project.

Chapter 2 shows how the research was undertaken in order to find answers to the research questions and to reach the goals of the research. In this chapter the research methodology is explained.

Chapter 3 presents the literature review. After this chapter the reader should be familiar with some theoretical concepts of why companies are founded, how they develop and what is the role of legitimacy.

Chapter 4 describes the research object, i.e. the company TallOil. Its historical development is shown and the company origins explained.

Chapter 5 is the analytical part. The collected data are analysed according to the four levels of legitimacy (organisational, intraindustrial, interindustrial and institutional) and their nature (positive and negative factors).

Chapter 6 is the chapter where the analysed data are discussed. Positive and negative factors are brought together, the special role of the forest industry and TallOil's basic bioenergy network are elaborated.

Chapter 7 is the concluding part. Reflections are presented along with TallOil's future direction. Also suggestions are given for future research.

Appendix I shows the results of the survey regarding TallOil's company culture. The conclusion is made that adhocracy is the dominant culture.

Appendix II shows the results of the second survey regarding TallOil's strategic orientation. The conclusion is made that traits of proactiveness and analysis are most strongly present in the company's strategic orientation, followed by a bit less strong traits of futurity and riskiness.

2 Research Methodology

The thesis represents basic research. The aim of basic research is not to apply the findings to solve an immediate problem (as it is the case with applied research), but rather to understand more about certain phenomena.[19] Understanding the development behind TallOil AB will form a foundation for further research and contribute to building of knowledge in this area, especially when Bioenergy network of Excellence will use the output of this thesis for a broader scanning of the European market (this is anticipated to be the next step).[20] The proposed way to bring this basic research about is shown in figure 2-1.

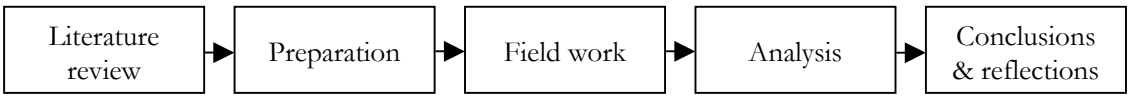

Figure 2-1 The research approach

It is clear that in order to perform a good case study of TallOil AB, a historical/chronological approach is going to be used, looking at the company's milestones, not only since its foundation in 1993, but even prior to that, when Mr. Lundberg started dealing with bioenergy in the middle of the 1970s.

2.1 Research Process

In this section the complete research process for data collection is presented. It consists of literature review (preliminary and main), preparation for the field work and the field work itself.

In order to start the research process the author had to be introduced to the project within the Bioenergy Network of Excellence. The actors in this network have perceived an area they perceive to be a research gap, i.e. lack of real-industrial cases related to bioenergy companies and consequently lack of dynamics of today's bioenergy businesses. The phenomenon to be examined was hence emerging of a real-life bioenergy company and its development. Knowing this the first step in the research process could start, i.e. the literature review.

2.1.1 Literature review

This part of the research process was divided in two phases: preliminary literature review and main literature review.

The aim of the preliminary phase was to get informed about the nature of business case studies and qualitative research. Academic literature from the IIIEE library and from elsewhere was read for this purpose. Furthermore web sources were used for collecting preliminary data on the Swedish bioenergy industry and in particular material specifically pertaining to TallOil (the primary study object).

Preliminary literature review made it possible for the author to learn about the study object and to plan the whole research process following after it.

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[19] Sekaran, U. (1992). *Research method for business.* New York: John Wiley & Sons, p.6.

[20] As already mentioned in chapter 1.4, this thesis is a part of a larger project called "Development of Bioenergy: from Niche to Mainstream" running within the Bioenergy Network of Excellence.

Having conducted the preliminary literature review, the position of TallOil as seemingly one of the leading companies in the Swedish bioenergy system was established. Therefore in the next step (the main literature review) the work was focused on extracting the ideas about:

- Foundation of companies
- Likely events in the development of a company in a new industry
- Barriers and drivers that a company in a new industry encounter
- The organisational culture and thinking as examples of characteristics describing what a company is like

The items listed above represent the primary items the thesis was aimed to examine in relation to TallOil. The set of literature reviewed for this purpose was of that kind where this type of theory was expected to be found i.e. journals such as The Acadamey of Management review, Journal of Developmental Entrepreneurship, Journal of Business Research, Annual Review of Sociology, Journal of Business Venturing, Strategic Management Journal and similar. The literature was found by using electronic journal databases but also printed material was acquired (journals not available on-line and books), mainly from libraries related to social, business and economic sciences.

The main literature review included also reading of secondary data received from TallOil in the form of annual reports from 1993 till 2005 (since the existence of the company up to the last available annual report).

This phase of the research process was necessary in order to get ready for the field work, which was the next phase. It created a point of departure where it was clear, that the leader figure in TallOil, being its founder Mr. Lundberg, was the key person to be covered in the research (but was of course not the only interviewee).

2.1.2 Preparing for the field work

It was decided that two tools would be used during the field work and built directly from the guidance of the literature review: interviews and questionnaires. The interviews allowed in-depth research with open-end questions and the questionnaires allowed efficient collection of data from a large number of respondents, which was necessary in order to get an insight into TallOil's company culture and strategic orientation.

Designing the interviews

Interview questions were designed according to the theory examined during the literature review. The supervisors and the author discussed and developed them throughout several iterations in order to shape them so as to contribute to achieving the objectives of the research. As a result the four basic interview question areas or "topics" were the following:

- Personal story and the history of the interviewee's involvement in the bioenergy world
- What were the important positive factors that supported founding a bioenergy company

- What were the important negative factors that hindered founding a bioenergy company

- Opinion on if and how TallOil has changed the business environment it exists in

During the interviews also follow up questions were asked. The follow up questions varied sometimes according to the background of the interviewee, his position, field of work and years of employment at TallOil.

Designing the questionnaires

Also the questionnaires were designed utilising the literature review as a basis The purpose of using the questionnaires was three-fold:

- obtaining an insight into TallOil's company culture

- obtaining an insight into TallOil's strategic orientation

- data cross-checking

In order to fulfil this purpose two questionnaires were designed: one for the employees (company culture) and one for the leadership (strategic orientation). The general format, content and approach followed existing survey examples found in the literature that sought to examine similar phenomena. These were adapted for this study in a number of iterations before being issued. Some completely new questions were added for the purpose of data cross-checking.

One consideration that appeared during the design of the questionnaires was the use of academic language in them. Namely in the existing questionnaires on strategic orientation American academic type language was used (expressions such as aggressiveness, futurity etc.). They were considered to be deleted because they might not have been suitable for the Swedish context and they also might have influenced the respondents' answers. However at the end it was decided to leave them in because of the strong English skills in the company (and generally in Sweden). As such it was also assesed they would better contribute to the clarity of the questions than being substited by numbers or other symbols.

Before the questionnaires were distributed they had to be approved by the president Mr. Lundberg and the company's legal expert Mr. Ånstrand. This approval was mentioned in the questionnaires in order to make the respondents feel secure and stimulate the response rate. Mr. Ånstrand also sent an e-mail to the respondents and asked them to participate in the research.

The questionnaires were sent by e-mails as an attachment. Here a special approach was used, again for the purpose of reaching as high response rate as possible. The respondents were namely asked to send their answers to the author's talloil.se e-mail account, which was a special account created only for this reason. The aim was to create more trust among the respondees.

The questionnaires were sent to the TallOil part of the whole group in Sweden, which includes the headquarters in Stockholm along with the company Fasta Bränslen and the company Stora Vika (the port) in order to get consolidated and comparable answers (TallOil's companies and offices abroad have a short history, some of them were established just

recently). For the same reason also TPS was left out, because it is actually another company, although owned by TallOil. Consequently 35 employees received the questionnaire on company culture and 21 of them responded. Five other employees representing the leadership received a separate questionnaire on strategic orientation and they all responded.

However not all of the answers were collected by e-mail but also personally on paper in Stockholm, because when the questionnaires were ready for distribution, many of the employees were on vacation (July and August). Therefore the opportunity was seized during the interviews in August to collect some more answers personally.

2.1.3 Conducting the field work

The author got into the organisation through a senior employee. The company's leadership supported the project and the author was welcomed by the CEO. He was given his own office and the company's e-mail account. The leadership and the employees were generally interested in the work. The impression was that the author fitted well in the organisation and became some kind of a semi-family member. This position and the participatory facet of research contributed to the relaxed and informal nature of research interaction, because the impression was also that the interviewees trusted the author and were willing to co-operate in a very open manner.

The author was "embedded" at TallOil for a total of three working weeks. Many informal contacts and interactions during this time contributed to this work, e.g. explaining some facts about the company, clarifying the obtained information, easier arrangement of interview sessions etc.

Basically the field work consisted of two major steps:

- Two weeks of interviews from June 19 to June 30
- One week of additional interviews from August 14 to August 19

All interviews were conducted in Stockholm. The majority of the information was collected during the first step. The answers were analysed and the need for more interviews identified. The second step was therefore oriented into collecting additional information (also on TallOil's future), but it was very important to distribute the questionnaires and collect more answers for the survey.

A large share of the week in August was used for the survey. Once the collection was over, the answers had to be analysed, because the wish was to present the results to the respondents. Finally three presentations were made. The first for the leadership, but because the managing director was not able to attend it an additional presentation was made. The final presentation was made for everybody at TallOil.

2.2 Research Framework

After the preliminary literature review where basic information on TallOil and the Swedish bioenergy system were collected and the research process was planned, the data collection needed to reach the objectives of the research could begin. The whole research framework is in the figure 2-2.

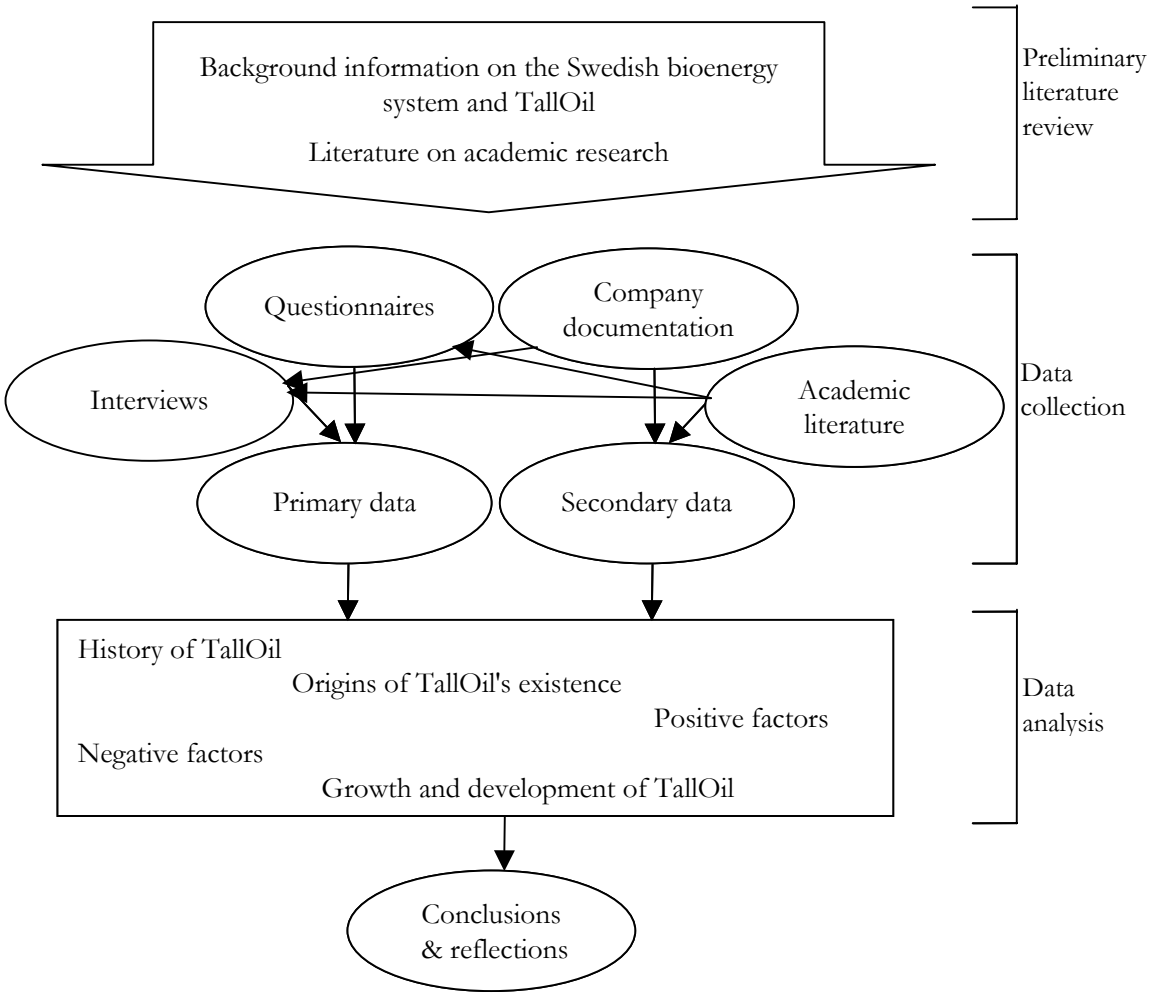

Figure 2-2 Research framework

Data were collected from primary and secondary sources. Primary data were obtained during the interviews and through the questionnaires, while the secondary data were collected from company documentation (annual reports) and with the help of academic literature. Company documentation and academic literature were also used in the process of designing the questionnaires and the interviews. The data were aggregated and analysed according to how they corresponded to research questions and the objectives.

Analysing the data was a long process that started immediately after the first round of interviews. Some analysis was still done in August after the second round of interviews. The collected data was aggregated according to how they corresponded to research questions and the objectives. Conclusions were written as a synthesis of the findings and personal reflections about the results. Furthermore they served as an orientation of what can be expected of TallOil in the future and potential for further research was elaborated.

The data were cross-checked by asking several people the same questions (several in-depth interviews). Answers from different interviewees were compared in order to find similarities and differences. Additional cross-checking was done by adding some questions to the questionnaires exactly for this purpose. This way the quality of the data was improved and proper conclusions could be made. It was namely necessary to design the research in a way

where examined issues were possible to be looked at from different angles. This approach to control the data was deliberately sought.

3 Theoretical Background

In this chapter we are going to have a look at some theories that explain a creation of a company, its development and its "fight" to become a part of the society (the concept of legitimacy). Later in this research also TallOil will be examined from the point of why and how it was founded, how it developed and how it relates to legitimacy.

3.1 Why Are Companies Founded?

The traditional microeconomics explains the foundation of a company on the basis of entrepreneur, who accepts risk, provides capital, organizes and controls the production resources, for which he is rewarded with profit.[21] Companies are often created by such individuals that seek this profit and are ready to accept risks of undertaking a new venture.[22]

In this respect Lee and Venkataraman identified several other approaches explaining why people seek entrepreneurial opportunities and become entrepreneurs:[23]

- The standard utility maximisation approach, where entrepreneurs are people with low risk aversion, who want to maximise the utility for the undertaken risk.

- The approach beyond economics based on the entrepreneur's personality, where entrepreneurial psyche is understood as an individual drive towards entrepreneurial behaviour with support of a vision.[24]

- The career choice approach, where decision about becoming an entrepreneur is just an occupational choice with no difference between entrepreneurial and non-entrepreneurial choices per se, and the decision is met based on rational assessment of the two choices.[25]

- Prospect theory approach, which is based on risk cognition, says that individuals are not uniformly risk-averse, but can be both risk-averse and risk-seeking, depending where in the field of losses and gains they find themselves.[26]

- The approach stating that entrepreneurship consists of a connection of profitable opportunities and enterprising individuals.

The approaches presented above are useful in the context of this study, because they deal with creation of new ventures and the entrepreneurial drive involved in it. Bioenergy companies

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[21] Rebernik, M. (1994). *Ekonomika podjetja* [Economics of an enterprise]. Ljubljana: Gospodarski vestnik, p. 33.

[22] Aldrich, H. E., and J. Pfeffer. (1976). Environments of organizations. *Annual Review of Sociology* 2: p. 86.

[23] Lee, J.-H., and S. Venkataraman. (2006). Aspirations, market offerings, and the pursuit of entrepreneurial opportunities. *Journal of Business Venturing* 21: p. 107 – 123.

[24] Also Ensley, D.E., J. W. Carland, and J. C. Carland. (2000). Investigating the existence of the lead entrepreneur. *Journal of Small Business Management* 38, 4: p. 59 – 77.

[25] Also Douglas, E. J., and Shepherd D.A. (1999). Entrepreneurship as a utility maximizing response. *Journal of Business Venturing* 15: p. 231 – 251.

[26] Also Fiegenbaum, A., S. Hart, and D. Schendel. (1996). Strategic reference point theory. *Strategic Management Journal* 17, 3: p. 219 – 235.

represent a new venture and these aspects are going to be looked at in this research. These approaches cannot be isolated from each other, because they have been evolving through time, were built upon each other and they are often interlinked. This means that a company (also a bioenergy company) can be founded for many different reasons.

3.2 When Are Companies Founded and How Do Companies Develop?

In his elaboration of reasons and ways how organisations (companies) are created, Stinchcombe[27] came up with the following hypothesis when does it happen. Hence according to him people create organisations when:

- They find or learn about alternative better ways of doing things that are not easily done within existing social arrangements
- They believe that the future will enable the organisation to be effective enough to provide return for the trouble and resources invested in its creation
- They or some social group with which they are strongly identified will receive some of the benefits of this way of doing things
- They can lay hold of the resources of wealth, power and legitimacy needed to build the organisation
- They can defeat or avoid being defeated by their opponents whose interests are vested in the old regime

These findings of Stinchcombe indeed try to explain when organisations are created, but on the other hand he goes further, explaining also the importance of the time frame itself, searching for an answer to the question why organisations founded in different periods of time are systematically structurally different. Or in other words the window of opportunity is in different periods open to different extents and this influences the structure of the newly founded organisation.

So according to Stinchcombe there are two fundamental problems in starting new organisations:

- Concentration of sufficient resources in the hands of innovating entrepreneurs
- Recruitment, training, motivating and functioning of personnel in a new structure that will function efficiently

In terms of structure of organisation he rephrases the two requirements above in the following way:"[…] an organization must have an elite structure of such a form and character that those people in the society who control resources essential to the organization's success will be satisfied that their interests are represented in the goal-setting apparatus of the

[27] Stinchcombe, A. L. (1965). Social Structure and Organizations. In *Handbook of Organizations*. J. G. March. Chicago: Rand McNally & Company.

enterprise, and the body of the organizational structure must have such relations to the labour market that an adequate equality of motivated work gets done."[28]

In order to achieve this, he continues, there are three most important resources necessary:

- Power (e.g. in the sense of the capacity to coerce)
- Wealth
- Legitimacy

So what makes the companies different is that at different times these resources are differently distributed and have different quality.[29] Therefore the companies also make different uses of these resources.

Also Morris[30] points out the role of resources and their importance in the subsequent development of a company and its achievement of sustainable advantage. Nevertheless, entrepreneurs commit various errors and blunders in the first stage of operations, which is called liability of newness. Again this is an approach explaining why companies founded in different periods are different.

However, over time the companies do not remain different, but become more and more similar. This is what DiMaggio and Powell assert by saying:"In the initial stages of their life cycle, organisational fields display considerable diversity in approach and form. Once a field becomes established, however, there is an inexorable push towards homogenisation.[31]"

Homogenisation is in other words called isomorphism and there are three mechanisms through which institutional isomorphism occurs[32]:

- Coercive
- Mimetic
- Normative

Coercive isomorphism results from political power and fight for legitimacy. Formal and informal pressures from other organisations and cultural expectations in the society make organisations move together and act similarly (e.g. environmental legislation, where all

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[28] Stinchcombe, A. L. (1965). Social Structure and Organizations. In *Handbook of Organizations,* p. 161.

[29] Basically we can say that this determines the window of opportunity: the distribution (i.e. availability) and the quality of resources.

[30] Morris, M. H. (2001). The critical role of resources. *Journal of Developmental Entrepreneurship* 6, 2: p. V – VIII.

[31] DiMaggio, P. J., and W. W. Powell. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields. *American Sociological Review* 48, 2: p. 148.

[32] DiMaggio, P. J., and W. W. Powell. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields.

producers need to adapt). Organisations are increasingly homogenous within certain domains and increasingly organised around rituals of conformity to wider institutions.[33]

Mimetic isomorphism is a result of uncertainty, which encourages imitation. Low understanding of technology, unclear goals or symbolic uncertainty created by the environment encourages organisations to model themselves on other organisations.[34]

Normative isomorphism stems from professionalisation. This happens either due to formal education produced by universities or other educational institutions (which is more or less the same for everybody) or through professional networks that span organisations (bringing the professionals closer to each other). Such individuals occupy similar positions across many organisations and have similar orientations. Moreover, personnel are also filtered, meaning that individuals from companies within the same industry are hired, making the professional career paths virtually indistinguishable.[35]

It is important to know that these three types of isomorphism cannot always be empirically distinguished as clearly as in theory and they can overlap.

So the theories presented above deal with the life path of a new company, the challenges it meets and how companies in an industry become in a way closer to each other (i.e. isomorphism which can in a new industry mean that other companies follow (mimic) the best one in the class or it can be triggered by standardisation etc.). Also in this work TallOil is going to be looked at how it has developed, what were the challenges and also the interaction with other companies will be tackled.

3.3 What Is the Role of Legitimacy for Companies?

In previous section the life path of new companies was looked at, and the theories presented suggested that at the beginning they are different from each other due to different quality and distribution of resources, but as time passes by they become more and more homogenous. Hence resources are important and one of these resources is legitimacy (which has also been mentioned in the previous section).

Legitimacy can be defined as the extent to which a company conforms to the general expectations of the society in which it operates.[36] A company is namely a public institution and not just a private arrangement created by contract. Therefore it is determined also by political and social factors and not just by economic factors alone.[37] Aldrich and Fiol adequately addressed these issues in their article 'Fools rush in? The institutional context of industry creation.'[38] As the title suggests, they analysed legitimacy in the institutional context and how new industries should gain it. They defined four levels in this environment where legitimacy needs to be gained.

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[33] DiMaggio, P. J., and W. W. Powell. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields.

[34] DiMaggio, P. J., and W. W. Powell. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields.

[35] DiMaggio, P. J., and W. W. Powell. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organisational fields.

[36] Davidson, K. (1996). Sure it's legal, but is it legitimate? *Marketing News* 30, 13: p. 13.

[37] Warren, R. C. (2003). The evolution of business legitimacy. *European Business Review* 15, 3: p. 153 – 163.

[38] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation.

Also other authors looked at the legitimacy and analysed it according to a company's environment, notably Suchman,[39] who points out not only the need to gain legitimacy, but also to maintain and repair it. These three aspects might be similar, but they still involve different problems and can't be treated identically. Furthermore along with the institutional approach to legitimacy, he identifies also a purely strategic approach, where legitimacy is seen as a tool and is used competitively by an organisation to reach its goals. In this case managers are supposed to have a high level of control over the legitimation process. This role of managers in winning an order by 'political' strategis has been adopted also by e.g. Pfeffer.[40]

Kostova and Zaheer[41] went further in the analysis of a company's legitimacy adding complexity. The conditions of complexity are especially present when a company starts working in an international environment having subsidiaries in different countries. In such cases the legitimating environment, the organisation and the process of legitimation can be different for different subunits. Thus the legitimacy of the organisation can be examined at the level of the whole organisation or at the level of the subunit in a particular country. If at the level of the whole organisation the legitmation process is already on the stage of maintaining legitimacy, this process can for some subunits still be at the beginning, i.e. gaining legitimacy.

However, because Aldrich and Fiol are well recognised and because their work appears to address the area interesting to use in the research of TallOil and fits the scope, their theoretical framework represents one of the fundamental underpinnings of this thesis.

Aldrich and Fiol[42] divide legitimacy in two related senses:

- Cognitive legitimacy, meaning how taken for granted a new form is and how the knowledge about it is spread. When it becomes so familiar and well known that it is taken for granted, new entrants to the industry are likely to copy it. Cognitive legitimacy also entails that people are knowledgeable users of the product or services.

- Sociopolitical legitimacy, meaning the extent to which a new form conforms to recognised principles or accepted rules and standards. It refers to process by which key stakeholders, the general public, opinion leaders and government officials accept it as appropriate and right. Sociopolitical legitimacy can e.g. be measured by assessing public acceptance of an industry, government subsidies to the industry etc.

Gaining legitimacy is a process and it works progressively in a hierarchy.[43] Figure 3-1 shows the four levels of this hierarchy.

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[39] Suchman, C. M. (1995). Managing legitimacy: Strategic and institutional approaches. *The Academy of Management Review* 20, 3: p. 571 – 610.

[40] Pfeffer, J. (1976). Beyond management and the worker: The institutional function of management. *The Academy of Management Review* 1, 2: p. 36 – 46.

[41] Kostova, T., and S. Zaheer. (1999). Organizational legitimacy under conditions of complexity: The case of the multinational enterprise. *The Academy of Management Review* 24, 1: p. 64 – 81.

[42] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation.

[43] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation.

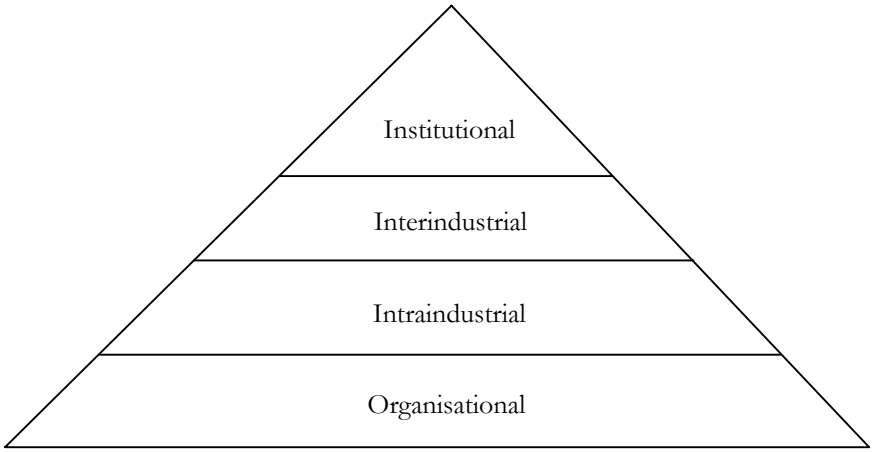

Figure 3-1 Four levels of legitimacy[44]

At all four levels there are different conditions that lead to different approaches how to gain legitimacy. These conditions are in a new industry different than in an established industry, where entrepreneurs can simply copy the old activities.

The following paragraphs present how Aldrich and Fiol explain the role of legitimacy at each of these levels and how it can be gained.[45]

Organisational level

The entrepreneurs lack information and existing practice in a new venture. They are pioneers who deal with unknown and they have to gain a trusting party's belief in order to overcome scepticism.

Cognitive legitimacy. In established industries entrepreneurs can just quote the existing tradition in order to trust from employees and other stakeholders. They have difficulties assessing the risk/reward relationship, therefore 'gut feel' and netting of complex relationships are vital.

It is useful for the entrepreneur to be able to bring across messages with strong psychological effects. Symbolic communication, charismatic appearance, emphatic speeches etc., psychological and rhetorical methods of this kind help them gain cognitive legitimacy

Sociopolitical legitimacy. An entrepreneur in a new business works in a very non-friendly environment. There is precarious institutional support, other industries are hostile and other ventures within the new industry do not agree in which direction this industry should go. This makes the organisational stakeholders shy and they are not ready to trust the entrepreneur.

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[44] Modified from Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation, p. 649.

[45] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation, p. 650-663.

A founding entrepreneur must build a knowledge base that will assist the outsiders in their decision to give him the support. Unfortunately the entrepreneur does not have externally validated arguments to start from. Instead of rational arguments, the case must be made with narration works by suggestion and identification. A good internally consistent story is needed. In this story the radical nature of their new activity must be disguised and the comparative advantage stressed. If they succeed they can later look back and tell a story about radical pioneers who founded the new industry.

Intraindustrial level

Once there is a knowledge base in their organisations, the founding entrepreneurs need to develop a knowledge base at the level of their organisations. Stable interaction between the organisations is needed.

Cognitive legitimacy. Competition and co-operation arise between the new organisation and different versions of products start to appear which can create confusion. The founders compete in order for their version to be accepted by the market. The knowledge between the organisations is not easily spread, because it is implicit, complex, in an uncodified form and specific to a particular organisation. Besides, the founders make frequent mistakes which add to the confusion.

Convergence towards a dominant product/service design increases with a new venture's ability to imitate others. The more imitable the innovation is, the more likely is a collective action. Of course, the innovation can be protected by patents and copyrights which makes a convergence and a collective action more difficult. This can lead to fierce competition, which can additionally hamper convergence. Imitability can hence be good for the industry as a whole, but some individual ventures' existence can become threatened if they cannot keep the pace with their competitive rivals.

Collaboration, strategic alliances and associations are very useful in this stage. Convergence around a dominant product or service design should be encouraged.

Sociopolitical legitimacy. Competitive behaviour of the new organisations when pursuing the approval of their own designs reduces the possibility that the best organisation will emerge, form coalition and push toward collective action. Instead some subgroups may emerge around designs, conflicts among them can arise and consequently also confusion and uncertainty for potential stakeholders. Also here collaboration and associations are needed along with pushing towards collective action.

Interindustrial level

A new industry has to deal with existing industries around it. They can feel threatened by the newcomer due to the new competition for existing resources and they can try to change the conditions under which these resources are available. Established industries may refuse to recognise or accept the new industry.

Cognitive legitimacy. Established industries can spread false information and rumours about the products or technology of the new industry, trying to present them as unsafe, expensive and unreliable.

The new industry has to build a reputation on its reality, creating an image vis-à-vis others that it should be naturally taken for granted. Linkages such as trade associations are extremely

important for promotion of the new industry's cognitive legitimacy at the interindustrial level. Such associations represent the new industry to government agencies, they promote it through trade committees, trade journals, marketing campaigns and trade fairs. Promotion through such third-party actors is positive for gaining legitimacy.

Sociopolitical legitimacy. Established industries oppose the new ventures that try to exploit similar resources. They question their compatibility with existing norms and try to induce legal and regulatory barriers in order to prevent the newcomers to enter the market. The growth of the new industry is therefore partly dependent on the severity of the attacks from established industries.

Reliable relationships with the established industry are necessary for the purpose of gaining legitimacy. A trade association or an industry council is probably required to create these relationships, mostly with education, compromises and negotiation.

Institutional level

Once the legitimacy is established within the emerging industry and vis-à-vis established industries, it is time to attain it at the institutional level. This is important, because the institutional actors can affect the diffusion of knowledge and how far it is officially and publicly tolerated.

Cognitive legitimacy. It is important for the new industry to create the critical mass needed to attain cognitive legitimacy. The problem is that mass media are unfamiliar with it and have inaccurate depictions. A bad image can also make it difficult for the new industry to employ and retain employees, because people are worried about their future in the new venture. Furthermore, educational institutions that could educate professionals for the new industry lack material and teachers in order to do so (not to mention that they are also conservative and do not like changes).

It is important for the new industry to establish partnerships with communities, technical colleges and other established educational curricula. But before curriculum materials will be written especially for it, it must achieve a high degree of self-organisation.

Sociopolitical legitimacy. Low sociopolitical legitimacy can be a the final barrier preventing the development of the new industry. There can be clash with norms and regulations resulting in difficulties in getting approvals from government agencies. They can simply be worried about the impact on the inhabitants and the environment or can just be influenced by lobbying groups of older industries.

The new industry has to communicate with institutions. Collective marketing, lobbying and interfirm co-operation are necessary.

Aldrich and Fiol conclude that many new activities never realise their potential because they do not gain legitimacy from the stakeholders, cannot deal with the opposing industries and do not win institutional support. Whereas imitability is still necessary to gain competitive advantage vis-à-vis other industries at the intraindustrial level, they still need to co-operate if they want to survive as a group.

4 Description

In this chapter the company is presented from different perspectives. The three main sections are hence the explanation of its name along with the description of the company, its historical development and its origins.

4.1 Name of the Company[46]

The name of the company is derived from one of the initial products they offered, which is tall oil (predominantly tall oil pitch), but the whole company's assortment is much broader.

Tall oil is a natural product of pine trees and is extracted in Kraft pulping processes. It was discovered in the late 1800 in Sweden, when the froth produced during Kraft pulping of pine wood was acidified. However, uses for tall oil developed slowly, due to its odour and complex nature. In the early 1900s Scandinavians started refining crude tall oil, producing fatty-acid fraction useful enough for inexpensive paints. The development later on brought new distillation techniques and new distillation plants.

Tall oil is extracted out of black liquor, which is basically the left-over of what remains in the Kraft pulping process, where wood and chemicals are cooked together and cellulose is separated. The black liquor contains many valuable inorganic chemicals and is recovered due to environmental and economics reasons. Excess water is evaporated and the soap containing all tall oil components floats to the top. This soap is skimmed and acidulated. As a result, basically three products come out: water-insoluble crude tall oil, an interfacial layer consisting of tall oil, pulp fines, calcium sulphate and some lignin, and finally a waste acid layer.

All of the by-produced crude oil is today refined by fractional distillation. During this process tall oil fatty acids and tall oil rosin are separated. As a result of refining, distilled tall oil, tall oil heads and tall oil pitch are produced.

Raw tall oil and distilled tail oil can be used as fuels, but in Sweden they are taxed as other fuel oils and are consequently primarily used as industrial raw materials.[47] Tall oil pitch is a dark thermoplastic material and is used in asphalt emulsions, low performance mastics and as a fuel (energy content 41.8 MJ/kg). In Sweden tall oil pitch is treated as an untaxed biofuel, therefore it is increasingly used as a fuel.[48]

The product of TallOil AB is called TallOil Blend. Apart from tall oil pitch the blending contains also small quantities of distilled tall oil and pre oil constituents from the distillation process. The end product is very well suited for burning in furnaces intended for heavy fuel oils.[49]

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[46] If not stateted otherwise summarised from Othmer, K. (1983).*Encyclopedia of chemical technology.* New York: John Wiley & Sons, p. 531-540.

[47] STEM. (2005). *Energy in Sweden 2005,* p. 45.

[48] STEM. (2005). *Energy in Sweden 2005,* p. 45.

[49] TallOil. (2006a). *Liquid biofuels / TallOil Blend.* http://www.talloil.se/3.1_liquidbiofuels_blend.html [13.5.2006].

The TallOil Blend leaves around 0.3 % of slightly alkaline ashes, whereas ashes from fuel oils are acetous. There are no measurable contents of heavy metals whatsoever. The ashes consist mainly of sodium sulphates and sodium carbonates.[50]

4.2 Description of the Company[51]

TallOil's traditional product is TallOil Blend which is mostly used for heating. The company is now growing into a group of companies delivering renewable bioenergy (solid and liquid fuels), technology for handling and combusting of biofuels and deliveries of heat. These different products are delivered either separately or together as "turnkey" projects.

In order to understand the success behind TallOil it is crucial to know the way the company is organised. From the perspective of the business areas the figure below can be created.

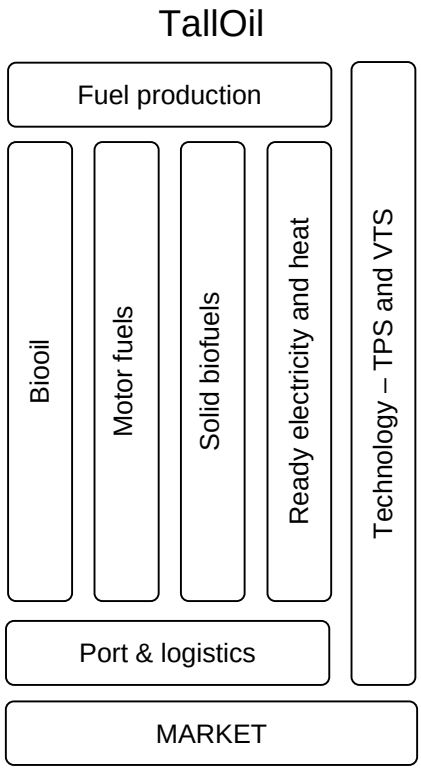

Figure 4-1 TallOil's five business areas with supporting functions[52]

TallOil has five fields of activities, whereas four of them have Port & logistics as a supporting function. The port function is provided by the subsidiary company TallOil Stora Vika. TPS (Termiska Processer AB – thermal processes) and VTS (VärmeTeknisk Service AB – heat-technology service) are also two subsidiary companies which represent the fifth field of activity, i.e. the technological wing of TallOil.

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[50] TallOil. (2006a). *Liquid biofuels / TallOil Blend*

[51] If not stated otherwise summarised from TallOil. (2005). *Årsredovisning 2004.05.01 – 2005.04.30* [Annual report 2004.05.01 – 2005.04.30].

[52] TallOil. (2005). *Årsredovisning 2004.05.01 – 2005.04.30* [Annual report 2004.05.01 – 2005.04.30], p. 8.

The whole group of companies is depicted in the next figure. The group was formed on May 16, 2003, when the parent company TallOil AB founded the subsidiary company TallOil Stora Vika Biobränsle AB. The same year SIA TallOil in Latvia was acquired as well, followed by the acqusition of shares in TPS, Fasta Bränslen and TallOil Inc.

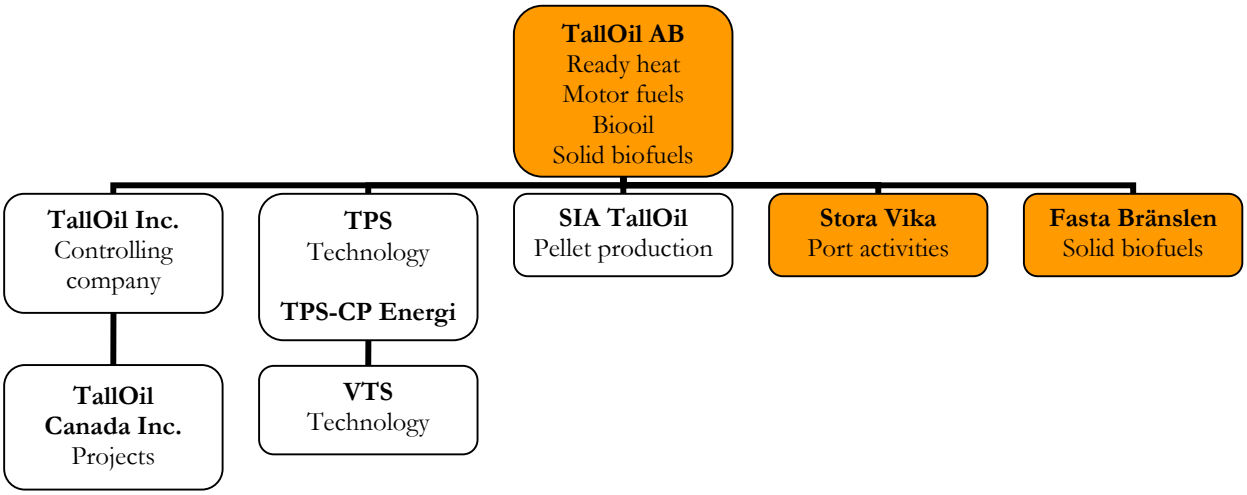

Figure 4-2 The TallOil group[53]

The boxes in orange represent the Swedish division of TallOil. TPS and VTS are also located in Sweden, but they are another kind of companies dealing with technology and therefore here not considered as 'original' TallOil companies.

TallOil AB

The parent company TallOil AB is not dealing only with heat, motor fuels, biodiesel and solid biofuels, but is primarily also responsible for the overall strategic leadership.

As already mentioned, TallOil Blend (TOB) is an important product in the assortment of liquid biofuels. It is used mainly as a substitute for fossil heating oil. In the financial year 2004/2005 the company supplied 100,000 tonnes of TOB. This fuel is purchased all over the world but the majority of it comes from Europe (own storages in Houston, Immingham, Rauma and Gävle make the logistics simpler). TOB has practically the same heating value as the substituted heavy heating oil, but contains little ashes, i.e. between 0.2 and 0.4 %. Because biooils in Sweden are not included in energy taxes, usage of TOB can result in savings up to 30 % compared to the usage of taxed fossil heating oil.

In the business area "Motor fuels" TallOil offers also other biofuels. The company focuses on the Swedish transportation sector, offering ethanol and rape methyl ester (RME). These are the two main alternative motor fuels in Sweden today.

TallOil has signed contracts with oil companies in Sweden and this made it to be one of the biggest ethanol suppliers on the Swedish market. The company imported up to 100 000 m^3 of ethanol for the Swedish market in the financial year 2004/2005, mainly from Brasil. Ethanol is used either as a 5 % additive in ordinary petrol or for the E85 fuel, which contains 85 % of

[53] Modified from TallOil. (2005). *Årsredovisning 2004.05.01 – 2005.04.30* [Annual report 2004.05.01 – 2005.04.30], p. 9.

ethanol and 15 % of petrol. The 5 % blending of ethanol in petrol means for Sweden a total yearly consumption of cca. 250,000 m^3 (if blending of a component in petrol is higher than 5 %, then the final product is not allowed to be called petrol).[54]

RME, as another motor fuel, is either blended with diesel oil or it is used pure, i.e. as 100 % rape diesel or biodiesel. In Sweden the blending of RME is limited due to the rules valid for the Miljöklass 1 diesel (environmental class 1 diesel). When this limitation is solved the market with 5 % blend is expected to be 200,000 – 300,000 tonnes of RME[55].

The business area solid biofuels is just partly in the hands of TallOil AB where the procurement is done. Sales are a responsibility of the subsidiary company Fasta Bränslen. Trade with solid fuels is at the present much smaller than with liquid fuels, but the market potential is big and has the future.

Finally, ready heat is TallOil's concept to control the final step in the process from production of fuels to production of heat.

Fasta Bränslen

Fasta Bränslen is a subsidiary company that sells solid biofuels and it was founded on October 26, 2004. As already mentioned, the procurement is in the hands of TallOil AB.

The company Fasta Bränslen is connected with the port Stora Vika. There they have the capacity for shipments to and from the port for bulk cargo, such as timber, briquettes, pellets, chips etc.

Stora Vika

The port Stora Vika offers port services to TallOil and other interested customers. It is a part of the biomass logistics centre, which includes purchase, loading, ship transportation, unloading, storing and refining of solid biofuels. It is also a trading centre for pellets and chips with the adjacent customers.

In the period 2004/2005 50,000 tonnes of goods were handled in the port. The number of ships increases constantly. From January 2005 to September same year 23 ships were handled, 20 of them in the period from January to May. Hence the pattern shows that the port is less busy in the summer time and the traffic takes off again in September. The increase in traffic in 2005 was possible also due to dredging of the fairway, which increased the depth to 7 metres making it possible for bigger ships to enter the port.

SIA TallOil

This subsidiary company is located in Latvia. Here TallOil runs its own pellet production with the capacity of 10 tonnes of pellets per hour. Pellets are delivered to customers in Sweden, the Netherlands and England. To give an idea of the delivered quantities the example of the contract can be presented, according to which TallOil is going to deliver some 40 000 tonnes of pellets per year.[56]

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[54] TallOil. (2006b). *Biodrivmedel* [Biopropellants]. http://www.talloil.se/svenska/4.0_biodrivmedel.html [12.6.2006].

[55] TallOil. (2006b). *Biodrivmedel* [Biopropellants]

[56] TallOil. (2005). *Årsredovisning 2004.05.01 – 2005.04.30* [Annual report 2004.05.01 – 2005.04.30], p. 16.

TallOil Inc. and TallOil Canada Inc.

These two companies are in charge of development and future production of pellets in Canada. TallOil's goal in this country is to control the whole chain: fuel production, fuel trade, combustion technology, installation contracts and power/heat supply.

In the year 2005 TallOil has acquired licenses for felling, which correspond to one million m^3 of timber per year. The responsibility of TallOil Inc. is to manage and safeguard the interests of TallOil in TallOil Canada Inc. The task of the latter is to make use of the licenses and develop primarily pellet production, but also chips and other sources of bioenergy. SEK 30 million have been invested up to April 31, 2005 in development of projects and acquiring of licenses.

TPS and VTS

These two companies represent the technological wing of the TallOil group.

TPS (Termiska Processer AB) from Nyköping (research, engineering) and Örnsköldsvik (production – CP Energi) offers technology know-how licences, hardware (equipment) and engineering consultancy within the field of combustion and gasification technologies of solid fuels (mostly biomass and waste). The three business units are TPS Engineering, TPS Research and TPS Gasification.[57]

VTS (VärmeTeknisk Service AB) is also a company with facilities in Nyköping and in Poznan (southern Poland). It is a part of TPS. It is involved in projecting and delivering of bioenergy installations.

One of the most prominent products of this wing is the burner Bioswirl which incinerates pellets. In Sweden it is mostly used to replace oil with pellets in industrial and district heating boilers. In contrast to traditional powder boilers, it can be fed also with coarsely-ground fuel, which makes the installation simpler.[58]

4.3 Historical Development

In order to be able to understand the success behind a company it is important to know its history. The historical perspective of TallOil is therefore presented in this section.

[57] TPS – Termiska Processer AB. (2006a). *TPS Termiska Processer AB* [TPS Thermal Processes AB]. http://www.tps.se/ [14.5.2006].

[58] TallOil. (2006c). *Välkommen till TallOil* [Welcome to TallOil]. http://www.talloil.se/media/050916.html [13.6.2006].

4.3.1 Chronological view

The company TallOil is inevitable linked to the name Henrik Lundberg. He is the founder and CEO. The story of TallOil is therefore to a large extent also his biography.

The following chronological view is composed of the information collected during the interview with Mr. Lundberg on June 19, 2006 and of the information in the annual report.[59]

Mr. Lundberg has been working with bioenergy since 1975. With his partners he started his first own company in 1977, which was a consultancy company called Novator and which still exists nowadays.[60] We start the chronological review below from this year on.

1977 – creation of bioenergy consultancy company Novator

1979 – the three founders of Novator took the initiative to start the Swedish Bioenergy Association called Svebio.[61] It was finally founded in summer 1980.

The 1980s – Mr. Lundberg took the initiative in 1981 of starting a pellet factory in Vårgårda,[62] one of the first pellet factories in Sweden. This was also a decade when Mr. Lundberg was active in building, developing and introducing new types of boilers in Sweden. He also delivered the boilers with Mr. Aarne Pehkonen, later his co-founder of TallOil. In the period 1984-1985 Mr. Lundberg also worked as a consultant with the government within the Delegation for energy procurement (Energiupphandlingsdelegationen), which was oriented into promotion of alternative energy sources.

1990 – he joined Studsvik (predecessor of TPS), first as a consultant but later as a project manager developing gasification technology.[63]

1992 – he became one of the owners of the company TPS.[64] This year talks with Stockholm Energi started, the first buyer of tall oil from Mr. Lundberg and Mr. Pehkonen.

1993 – the company TallOil was founded.

2000 – the present co-owner Mr. Göran Forsberg entered the company, because before that the previous co-owner Mr. Pehkonen decided to leave for a project in south-east Asia.

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[59] TallOil. (2005). *Årsredovisning 2004.05.01 – 2005.04.30* [Annual report 2004.05.01 – 2005.04.30].

[60] Novator is today a part of the bioenergy publishing house Befab AB. The activities still cover bioenergy, namely creating homepages, web publishing, communication through printed material, conferences and internet, reports about energy, environment, market analysis and market development (Novator, 2006b). The managing director of Novator is Mr. Lennart Ljungblom, who founded the company together with Mr. Henrik Lundberg and Ms. Ursula Buddenbaum.

[61] Before christmas 1979 Novator sent out christmas greeting cards to around 100 people, which also included an invitation to join a biofuel club. The invitations were signed by Lennart Ljungblom, Henrik Lundberg, Karin Segerud and Gunvor Dahl. Svebio has today 400 members of which 300 are companies active in the bioenergy field (Svebio, 2006b).

[62] In south-west of Sweden, approximately 70 kilometres from Gothenburg.

[63] Studsvik AB is a company mainly active in the nuclear power industry. In the 1980s it had two main business divisions: nuclear and energy technology (Studsvik, 2006).

[64] TPS was initially a part of the state owned company Studsvik, whose owner in 1991 became a major power company. The activities in Studsvik's unit for thermal processes were transferred to a separate company in july 1992. This company was registered under the name TPS Termiska Processer AB. It was initially owned by Swedish thermal power stations, biofuel and power partners (51 %) and by the employees (49 %) (TPS, 2006b).

The period from 2000 up till today can be described as an expansion phase. The detailed chronological order is described in the following paragraphs.[65]

2001 – important delivery contracts were secured. Two long-term contracts for deliveries of TallOil Blend (TOB) to customers in Stockholm were signed.

2002 – deliveries of TOB increased sharply. Contracts with new suppliers in different parts of the world were signed. Continuous ship transportations under long-term contracts began.

2003 – TallOil begins to trade with biodiesel and ethanol. Important deliveries to Swedish oil companies began. Also the subsidiary company Stora Vika was founded and TallOil became a group. Furthermore SIA TallOil in Latvia was acquired symbolising entering in the pellet business.

2004 – 72,2 % of shares in TPS were acquired and business in Canada was established.

2005 – TallOil acquired outstanding shares in CHAP in Canada. Order intake in TPS increased substantially. In autumn the majority of shares in VTS were acquired. A long-term contract for delivery of considerable quantities of pellets was signed. New offices in Castleford (England) and Vancouver (Canada) were opened.

4.3.2 Commercial performance

In this section the net sales and the profit (actually earnings after financial items) of TallOil from its foundation in 1993 up till the last published annual report (for the period 1/5/2004 - 30/4/2005) are closely observed. First we begin with the net sales.

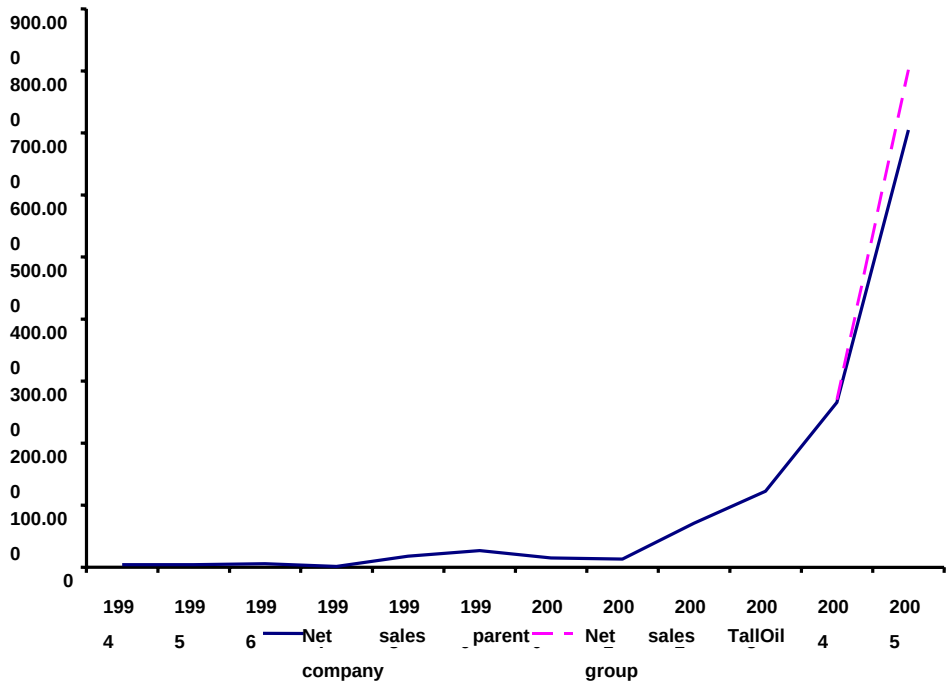

Figure 4-3 Net sales of the company TallOil (in SEK 1000)

[65] TallOil. (2005). *Årsredovisning 2004.05.01 – 2005.04.30* [Annual report 2004.05.01 – 2005.04.30], p. 58.

The figure above shows, that so far the majority of the sales are still realised with the sales of the parent company. This is not surprising, because the liquid biofuels that represent the bulk of the sales are in the hands of the parent company.

The explosion of the market occurred after 2001. Up till then it appears that the sales had not been changing dramatically. To have a closer look at this period a figure in a logarithmic scale is shown below.

Figure 4-4 Net sales of the company TallOil in logarithmic scale (in SEK 1000)

The logarithmic scale makes some fluctuations more visible. Many things happened from 1993 to 2001 and they must have had an impact on the sales. It is difficult to connect each event to a specific change in the sales, because there is always a time lag, but the following happened during this period:

- EFO, a procurement organisation for some Swedish energy companies, decided to buy the fuel directly, i.e. without TallOil as an intermediate agent (this happened in 1996).

- A large competitor bought TallOil's supplier of tall oil pitch and terminated the contract with them. The same thing happened later again with TallOil's next supplier. So during the observed period they were forced to find a new supplier at least three times.

- In 1999 an important customer bought substantially smaller quantities. The reason is assumed to be favorauble weather conditions and maybe also lower prices of other fuels.

- There were some different views between the two owners of TallOil about the companies future and Mr. Pehkonnen left the company, which was a mutual decision. He was replaced by Mr. Forsberg in year 2000.

Let us now also have a look at the company's earnings.

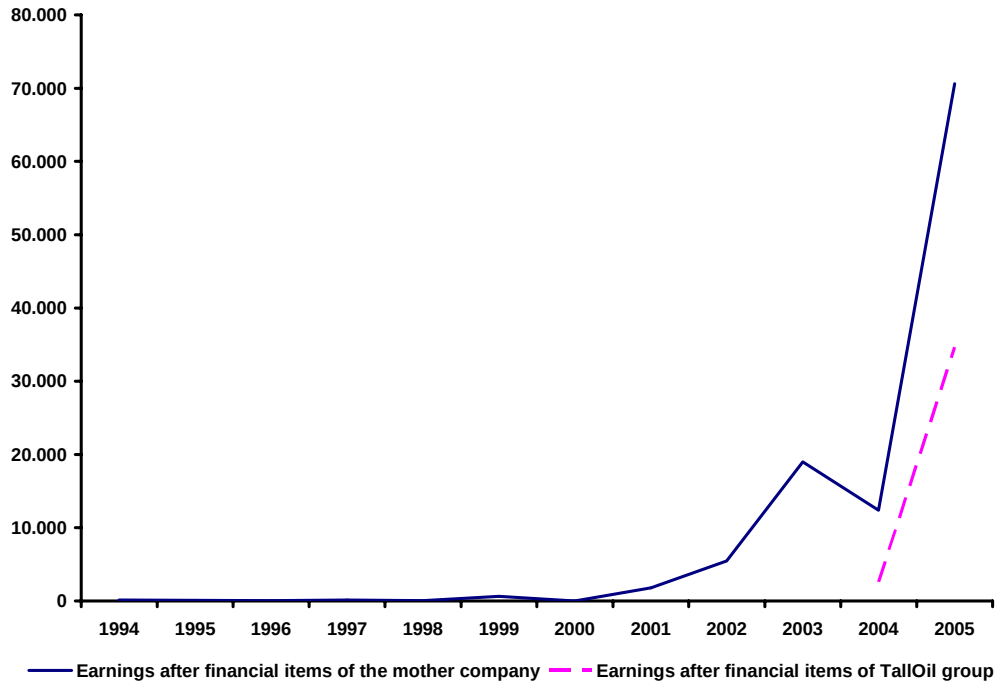

Figure 4-5 Earnings after financial items of the company TallOil (in SEK 1000)

Similar is in the case of net sales we can also se a fairly steady period up till 2001. Therefore also earnings are going to be presented in a logarithmic scale.

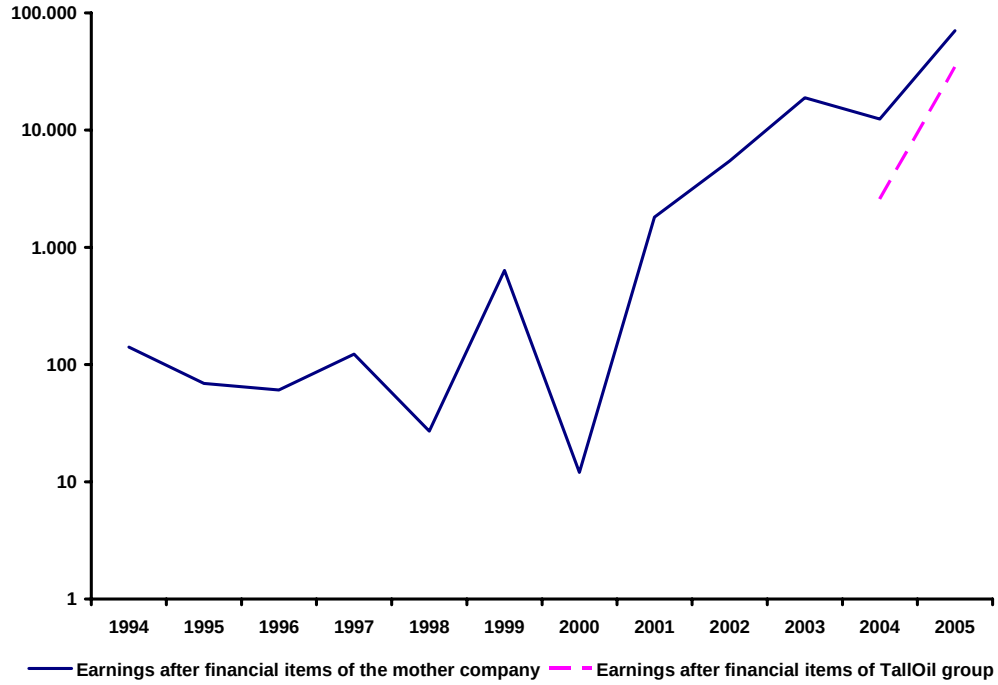

Figure 4-6 Earnings after financial items of the company TallOil in logarithmic scale (in SEK 1000)

The logarithmic scale in the figure above shows some turbulences as well. But there is another thing that can be noticed and that is that the patterns of sales and earnings are not the same in some periods.

In the period 1996 – 1997 sales fell, but the profit went up (actually in the period from 1/5/1996 to 30/4/1997, the financial year in TallOil ends in April). According to Mr. Petrini such discrepancies are not unusual in accounting, because profit does not just follow the trend in sales paralelly.[66] In this period the sales were affected due to the decision of one of their main customers to buy fuel directly. So the sales went down but so did the cost of sales which in turn affected also the earnings.

In the period 1997 – 1998 sales went up but the profit fell low due. This happened because they needed many external loans (increase in interest expense) in order to pay the suppliers (the loans were later repaid from sales income). In this period they also increased the stocks which in turn lead to higher costs as well.

The period 2003 – 2004 is already in the big expansion phase but still we can see a fall in earnings. There were a lot of investments during this time, such as the pellet factory in Latvia, the port of Stora Vika, covering the losses in TPS etc.

It is also interesting to know that TallOil officially did not have any employee till 2001. Mr. Lundberg, Mr. Pehkonen and Mr. Petrini worked as consultants for TallOil and earnings were also affected by the sum they charged for their consulting services.

4.4 Company Origins

Before we look deeper behind the development of TallOil from a niche player to a large biofuel supplier in Sweden, we need to find out, why the company was founded in the first place. The reader is advised to read the chapter 3.1 (Why Are Companies Founded?) again, before continuing with this part, because the theoretical findings are here supported with the research work done at TallOil.

4.4.1 The role of entrepreneurial drive

When asked, what was the reason why he founded TallOil, Mr. Lundberg said: "The main reason for starting TallOil was that it was absolutely necessary for me to do so, [...] because I was working as a marketing manager and one of the founders of TPS, a credible R&D company. I felt that within the walls of TPS I could not get any feedback for my commercial drive. I could not see how I could open up markets and get interesting things to happen within this field. I thought that I would suffocate within the company. So I think that is one of the main drivers. Because if I had not done that I would probably have had to quit the company and do something else with my life. Because I needed some more air, some more visions and some more commercial drive within my life. […] So this is basically why I started TallOil."[67]

So from this quotation it is clear that Mr. Lundberg has a commercial drive but also ideas in which he believes. He goes on saying: "[…] why are we doing this, what is the reason why we are doing this, it's not the dollars, it's not the profit, we have to remind ourselves that we are

[66] Lars Petrini (28/6/2006), personal interview.

[67] Henrik Lundberg (19/6/2006), personal interview.

actually doing something for future generations and for the sustainability of society as we know it."[68]

Seeking profit does not appear to be a goal per se and the only reason he founded the company. However the fact is that he has his commercial drive and also Mr. Ljungblom, his partner in founding their first company Novator, described him is a businessman, who does very good judgement in business and has a very clear goal. He wants to build companies and also earn money.[69]

Clearly entrepreneurs do not found companies without any intention to make money. Mr Lundberg admits the importance of money by saying: "[…] if we are not commercially successful it does not matter what visions and ambitions you have. You have to be commercially successful in order to do those things that you really want to do."

Hence the difference is what the entrepreneurs do with the profit. Some prefer to retain the profit and use it for their own consumption (which is of course a completely legitimate drive to earn money), others reinvest it in the company to live up to their visions and ambitions, and Mr. Lundberg considers himself to represent the latter type of entrepreneur.

4.4.2 The power of creative vision

In previous chapter it can be seen that Mr. Lundberg believes in his ideas (but of course he needs to create some profit in order to live up to them and it is the entrepreneurial drive that makes it possible).

His beliefs and power of vision can also be extracted from the following statement: "[…] and I have seen that during this time I have so many examples of the power of vision, if you want something and if you want something really bad and if you are prepared to work and if you have a good cause, it is possible to accomplish things. And I think that our work here, TallOil, is an example of that. It's much easier to walk along the road if you know where you are going."

Furthermore he continues: "You have to see that TallOil was not the target of my dreams, the goal of my dreams at all, not at all. The fuel tall oil pitch is nothing that I think… I don't think it's anything special, it's a biomass, it's a niche business, niche business that has the advantage that competition is maybe not so strong and the supply is limited […] But the main thing for me is that tall oil pitch, which we started with as a fuel, was a platform, it was a way to build a company."

In this regard it is important to know that TallOil is only the last company in his series of founding companies, but it is commercially the most successful one. He has been namely in this field for 30 years and has not made big earnings until the last couple of years as he puts it (see also figures 4-3 to 4-6). He has never been really poor, but for example there were also times when he lived on his wife's study loan. This shows he was pursuing a long-term vision and not short-term profit opportunities.

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[68] Henrik Lundberg (19/6/2006), personal interview.

[69] Lennart Ljungblom (27/6/2006), personal interview.

When talking about vision, we need to ask ourselves what entrepreneurial vision actually is. According to Ensley et al,[70] entrepreneurial vision is not the same as opportunity recognition. The latter means identifying a circumstance (opportunity) which already exists and represents a rational assessment of the environment. A vision goes one step further and means the ability to see how to change the environment in order to create opportunities. Here not only rationality is addressed but faith as well.

Mr. Lundberg definitely has recognised opportunities throughout these 30 years of involvement in bioenergy. For example trading with tall oil pitch that started in 1992 was a result of a recognised opportunity. When his contact in the Finnish forest industry offered him this distillate fraction from distilling crude tall oil, he and his partner at that time Mr. Pehkonen made a market survey and they looked at the existing drivers that could motivate the use of it. When the favourable situation was identified, he talked to his friend Mr. Thomas Bruce, the managing director of the Stockholm energy company (today called Fortum), where they together with Söderenergi (energy company in southern Stockholm) had already been looking at alternatives to fossil fuel oil. This factor made the opportunity even bigger and when they were offered tall oil pitch they quickly decided to place an order.

So this was a window of opportunity he identified and as he says, the window of opportunity to found a bioenergy company has opened more and more over these last years.

But he also has an entrepreneurial vision and he used the word several times during the interview. It is this vision of bioenergy as an energy source he has been pursuing and tall oil pitch was an excellent opportunity to help him in bringing this vision about, but in itself he does not find tall oil pitch to be anything special.

Looking at the entrepreneurial vision as the ability to see how to change the environment, then his following statement is very illustrative:"[…] I have done a lot of missionary work out there. Presenting bioenergy to municipal politicians, and to county councils and to companies and so on and to the large power companies and I've been working within the all different aspects as a consultant, as an entrepreneur as a researcher and what have you all over the years." This drive within him to create opportunities was very strong, because he continues with: "I have bashed my forehead against a rock wall, years after years, after years and trying to convince and trying to discuss and trying to find rationales for using bioenergy and trying to sell out products on the market and it has been many many difficult years. [...]I have a very strong drive and a very strong belief in the tasks that we have in our company. So you have to be rational, you have to act rationally, but you have to have a belief. If you don't have a belief, if you don't have a vision for what can be possible in the long run, you should never indulge in the long term tasks."

For him it is hard to say whether he or TallOil alone have really changed the environment, and something like that is actually really difficult to establish or to measure, because they are not the only bioenergy company in the market.

Also his colleagues at TallOil think the same,[71] but two notions can be derived:

- TallOil has proven that it is possible to accomplish something big in the bioenergy industry, having in mind that the whole story started as a hobby in a garage.

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[70] Ensley et al. (2000). Investigating the existence of the lead entrepreneur, p. 61.

[71] Göran Forsberg (20/6/2006), Bo Hektor (26/6/2006) and Mårten Zakrisson (29/6/2006), personal interviews.

- As a company TallOil is able to offer both fuel and equipment in a package, which is attractive for some kinds of customers and can push them over the edge so that they go into it. In that way TallOil is more or less alone in the market that they can provide both fuel and equipment.[72]

Both of these points talk about changing belief in bioenergy and two different ways how TallOil is doing it. One by creating a success story and one by creating a market in which more opportunities for bioenergy arise.

However it is important to know that Mr. Lundberg also co-founded Svebio, for which Mr. Ljungblom, the other co-founder, says that Svebio has really good connections with the government which asks the association about advice what to do. "They don't listen all the time but they ask. Earlier it was impossible to get any contact at all so this is good. The bioenergy business has become established, we have as good relations as almost any other business, car industry or the power industry, you name it. I will not say that we have as good but almost. It's not the same level but we are in quite a good situation," says Mr. Ljungblom.

4.4.3 The challenges of risk exposure

Because Mr. Lundberg has been constantly in a search of opportunities in realisation of his bioenergy vision, he has also been willing to take risks. The difference in the degree of risk aversion was probably also one of the biggest differences that made both founders of TallOil took the decision to split up. Mr. Lundberg had big plans with the company for what he needed extra funding. But the funding for his plans was available only in a form of a bank loan. As he says, he was not able to develop the company according to his plans without taking risk.

So when he reached an agreement with his partner to take over the company and bought him out, he applied for the loan and the bank required him to make a personal commitment and he agreed on that, but that meant also that the chances for him to bring about his ideas became larger.

Also the present and future plans require additional external funding and they involve risk. He says:" […] our risk exposure is rather high compared to what companies would feel is comfortable. But that is also one thing that I see. In order to get something you have to risk something."

Hence it can be seen that Mr. Lundberg has been willing to take on risks and the strong belief gives him confidence to do it. However, years of experience has changed him and nowadays he is more careful than before. The company is growing and so does the number of employees, so he is becoming more cautios.

[72] Indeed this is very important for customers. As Mr. Lundberg can recall his early attempts in the 80s, when he was alredy very active as a bioenergy entrepreneur but not as commercially successful as at the present, by saying: "I wanted to sell pellet burners in the beginning of the 80s, but nobody wanted to buy a pellet burner. They wanted to buy full service. They wanted to buy the burner, the installation, the boiler, the fuel and the service, and I couldn't do that." (Henrik Lundberg, 22/6/2006, personal interview)

4.4.4 Summary

To answer the question why TallOil was founded we need to look at all the presented aspects. The story actually begins much earlier than 1993 and foundation of TallOil is just a consequence of a series of events and most of all an entrepreneurial vision, that Mr. Lundberg has been constatntly persisting.

According to Mr. Lundberg TallOil was founded because he needed some more air in order to creatively use his commercial drive, which was not possible at his workin place at that time. However it can be seen that there is more to that:

- TallOil was founded as a result of an entrepreneurial vision in which bioenergy has a major role as an energy resource. The foundation of the company in 1993 was one (but an important) step towards the realisation of the vision.

- TallOil was founded because the initial product, tall oil pitch, had a market (a new niche market, where the competition at least at the beginning was not that strong) and thereby a generation of profit was possible. The profit was necessary to reward the acceptance of risk and to finance the further realisation of the vision.

- TallOil was founded because it was only natural for Mr. Lundberg to continue in this field in which he had been working for almost 20 years at that time.[73]

- TallOil was founded, because Mr. Lundberg needed his own company in order to be able to take on the risk he was ready to take on.

The story of TallOil is a dynamic story and in ten or twenty years from now, it will probably look fairly different from what it looks like today, because the dreams and the ideas are still there. So if a business case will be done at that time, many new and different aspects will probably be taken in account. The story goes on and it is questionable whether the vision will be fully realised, or as Mr. Lundberg says:"I will never be satisfied. I can tell you that. Never."[74]

[73] Henrik Lundberg (19/6/2006), personal interview.

[74] Henrik Lundberg (22/6/2006), personal interview.

5 Analysis

Throughout TallOil's lifetime there were different moments and drivers that enabled its creation and existence. On the other hand, there were also hindrances. In this chapter we are going to sort them following the approach of to Aldrich and Fiol, i.e. the four levels of analysis: organisational, intraindustrial, interindustrial and institutional.[75]

5.1 Positive Factors That Enabled the Existence of TallOil

Firstly the positive factors are going to be analysed in the four following sections. It will be seen that they have been very important for the development of TallOil.

5.1.1 Positive organisational factors

At the organisational level the personality of the entrepreneur plays the vital role. As already described in chapter 4.4.3, Mr. Lundberg has the power of vision and he has done a lot of missionary work. So a very important driver at this level was his motivation to realise his vision and commercial desire. There have also been very personal circumstances that boosted this driver, here we can name at least two:[76]

- He did not graduate from the Royal Institute of Technology where he studied, because he started his own company. He says:"I never found the strength or the ambition to go back and finish off my courses. Which I've been a little sad about for many years. That might have been an additional driver for me as well, not having had my finished exams."

- He had a bypass operation in 1998, which gave him even more desire to develop TallOil, or the way he puts it: "One of the triggers for me to start vigorous development of TallOil, I must say it's a special thing, it was in 1998, I had a heart bypass operation, and after that operation the people within the hospital and within the company said 'Henrik, now it must be the time for you to slow down, take it easy and feed the pigeons', and I thought maybe I shall, but maybe I want to accomplish something first, so what I really decided was that […] I would look more at my own ambitions, my own wishes and take less regard for what other people thought of my doings and my operations. So it was actually quite a conscious decision for me to expand to see and to see if we could do something with TallOil. I said to myself I will give these five years to see if I can make myself economically independent and see if it is possible to fulfil any of the goals I have set up for this company."

On some occasions it also was not that necessary for him to really persuade his potential partners or employees, because they were bioenergy believers themselves such as Mr. Ljungblom and Ms. Södermalm in case of Novator, or Mr. Forsberg in case of TallOil in year 2000 who also became a co-owner of the company.

The results of the survey in appendix I show that also today it does not take a lot of effort for TallOil's leadership to gain the support of the employees for new actitivities. It indicates that

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[75] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation.

[76] Henrik Lundberg (19/6/2006), personal interview.

TallOil is a company where the bioenergy belief is present also among the employees. This can be counted as another positive factor at the organisational level.

Box 5-1 What do employees at TallOil think about how new activities in their company are undertaken

In appendix I, chapter AI.2.1 detailed results from the survey are presented on this topic. It appears that TallOil's strength on the organisational level is that not much effort is needed for the leadership to gain support from the employees for new actions. However it seems like not all the plans are shared with them (which in a way makes sense, because leaderships normally do not share all plans with employees). Appealing to participation of all employees and consistent story-telling could be improved but the situation cannot be estimated as critical. An explanation by the leadership was that it is difficult to tell consistent stories, because they work in a very dynamic environment where things change quickly and so do the stories.

5.1.2 Positive intraindustrial factors

At the intraindustrial level there were several factors that made it easier for TallOil to be brought to existence and to remain active.

To start with, sometimes new companies do not get the legitimacy at the intraindustrial level because they are rather seen as competitors than as a company that will enhance the development of the new emerging industry. This problem was avoided in case of TallOil because tall oil pitch is a niche product and the competition was not so strong at that time. So smaller initial competition in a small segment of the whole bioenergy industry was a very important driver.

As far as the other bioenergy companies are concerned (those who were not 'threatened' by TallOil's entrance in the bioenergy business), Svebio has been the focal point of their co-operation and collective action. Collective action at an intraindustrial level means mainly consolidating the industry and creation of synergistic effects, which are necessary exactly in the bioenergy industry, where there are many small companies. Having a proactive association like Svebio makes the existence of the whole industry easier.

Another important fact that made the existence of TallOil and also other bioenergy companies easier is the customer structure if regarded from the standardisation point of view. Large district heating companies and public utilities namely have specific demands in their procurements and in that way they make the offering companies move collectively in the same direction (and at the same time help the still underdeveloped standardisation in some areas). This prevents them to spend time and energy on fighting over designs and standards.[77]

As a matter of fact, possible lack of standards does not directly affect TallOil, because they are not active in the small-scale household segment where standardisation is also most economically efficient (whereas in the pellet business which they entered in 2003 it had been developed a bit better). TallOil has to some extent been involved in standardisation, but not very much, because they spend more time on their own development and do not regard themselves as a company that should be individually involved in such work. Svebio is the place for collective action and it is practical for TallOil to let this associaton look after it.

[77] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation.

Generally speaking TallOil is in a very interesting situation. On one hand they admit, that there is some mess in the market and at the intraindustrial level due to many new companies with low competences,[78] but in a way this is good for TallOil at least in the short-run, because they have the reputation of a good company and they employ very skilled and competent people, which give them an immense competitive advantage. So more companies increase the legitimacy of the bioenergy industry and TallOil is the company that makes the profit out of this increased legitimacy.

The basically unique employee structure makes them also hard to be copied and the perception is that there are companies who try to copy them ('wanna-be-TallOil companies'), but they do not really feel the effect of that. According to Mr. Borg[79] there is enough space for new companies anyway, because the market is not saturated yet. Mr. Lundberg also makes a lot of presentations of his company and in a way creates the possibility to be copied, but he has his own opinion about this, saying: "People tell that I am too open and I tell too much and so on but I think it goes both ways. In order to get something you have to give something. […] You have to sow in order to harvest."

5.1.3 Positive interindustrial factors

Surprisingly there has been some support for renewable energy and hence also for bioenergy from other established industries as well. For example when Mr. Lundberg decided to build his first pellet factory in 1981, he actually managed to get in a company, that was partly owned by a private oil company and by a national Swedish forest company. So in a way bioenergy had legitimacy also at the interindustrial level and it has also been very helpful for Sweden that it has had a tradition of wood energy for a longer time. Already in the 70s the oil was heavily taxed (for the purpose of oil substitution) so there were some niches where wood energy survived in Sweden.[80] Probably this made the acceptance of bioenergy at the intraindustrial level easier in the years to come.

As in case of TallOil there were some companies that were really interested in new energy sources, such as Stockholm Energi and Söderenergi, who were their first buyers and placed first orders for tall oil pitch. Such large district heating companies were able to give a real kick to new energy sources, because they had a large amount of financial resources and could really contribute to the creation of the new market on the demand side. The situation is still the same today, because these large companies generate more and more demand for pellets for example and it is actually the supply side that needs to catch up with them.

An important actor at this level that definitely needs to be mentioned here is the Association of Swedish farmers. Many Swedish farmers own some forest and of course they are interested in having more demand for their product and they would like to have some way of financing the operations required to bring their harvest to maturity. So Swedish farmers have been quite broad minded and they supported bioenergy, because they saw it as something that could increase their incomes. Maybe today farmers cannot be regarded as being at the interindustrial level anymore and they have become a part of the intraindustrial level, which is of course very important for gaining legitimacy, because in such case a whole new sector (agricultural in this

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[78] E.g. Göran Forsberg (20/6/2006) and Bo Hektor (26/6/2006), personal interviews.

[79] Anders Borg (22/6/2006), personal interview.

[80] Bo Hektor (26/6/2006), personal interview, and Johansson, B., P. Börjesson, K. Ericsson, L. J. Nilsson, and P. Svenningsson. (2002). *The use of biomass for energy in Sweden – critical factors and lessons learned.* Lund University: Department of Technology and Society.

case), becomes the ally of the new industry.[81] Mr Lundberg says about them:"I think that the farmers have worked very consistently being a stakeholder in bioenergy […]. They have supported the Swedish bioenergy organisation, particularly in the early days. Their support was imperative for the survival of Bioenergy association."[82]

As in the case of Swedish farmers, we can also see other examples of other industries entering the bioenergy sector, which enhances its legitimacy. For example the big Swedish petrol company OK Q8 already sells pellets and it can be expected that this trend will continue.

Last but not least, if we consider the financial sector as an interindustrial factor, then TallOil has rather positive experience with the banks. It was not easy but somehow Mr. Lundberg managed to get loans for them. For example at the beginning when he wanted to expand the operations, the bank gave the loan under the condition that he made a personal commitment. The second time he needed a substantial loan from the bank was in 2000, when the new partner Göran Forsberg has already joined the company. Again it was the case of financing the expansion and again a collateral was needed, this time in the form of the traded fuel. They managed to persuade the bank that the fuel was bankable, which was not easy, but still it is visible that the bank trusted this new industry to a point.

5.1.4 Positive institutional factors

It is generally known that at least a part of the Swedish official politics has been in favour of renewable sources of energy for a long time. As already mentioned, oil has been heavily taxed in the 1970s because of the oil crisis.[83] In 1993 a carbon tax was introduced (0.25 SEK/kg CO_2) and the energy tax was simultaneously reduced by 50%.[84] This type of taxation gives of course a lot of support for bioenergy and TallOil has gained from it.[85]

Another important contribution from the government was funding (incentives, subventions). For example, Mr. Lundberg has throughout his career been very involved in R&D, either personally or now by owning the company TPS, where a lot of research work is done on combustion technologies. Apart from his personal characteristics, this drive to research was also stimulated by the research grants offered by the Swedish government or better to say by the Oil substitution fund, Solid fuel promotion fund and similar. These target resulted funds made an important difference for the renewable energy ventures. They enabled the start-up companies to work for two or three years, before they had to make it more or less on their own (the history of Swedish energy R&D is for the purpose of additional background information presented in box 5-2).

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[81] Bo Hektor (26/6/2006), personal interview.

[82] At this point the reader should be informed that the attitude of forest owners, the structure of the forest industry and its position towards bioenergy is discussed in chapter 6.2.

[83] Mr. Ljungblom can also remember another interesting factor, that in a way contributed to the acceptance of bioenergy already in the 1970s, namely the environmental movements embodied in the "flower-power" or hippie movements in that time (Lennart Ljungblom, 27/6/2006, personal interview).

[84] Johansson et al. (2002). *The use of biomass for energy in Sweden – critical factors and lessons learned.*

[85] In this respect Mr. Lundberg can very well remember Birgitta Dahl, which was the Swedish energy minister in the 80s, who was stating that "the oil prices were to increase by 2 % in real terms per year. And if they would not do so by commercial forces, the government would make it happen." (Henrik Lundberg, 19/6/2006, personal interview)

Furthermore, Mr. Lundberg was working for the Delegation for energy procurement which ran a special fund.[86] It was built to dissipate funding for the introduction of new renewable energy technologies. The fund distributed SEK 1,200 million within a two year period, particularly to build district heating plants around Sweden, mostly peat fired but also biomass fired.[87]

Bo Hektor[88] pointed out another very interesting area, where bioenergy and other renewable energy sources had legitimacy, namely the army. He says: "They saw that we were very much dependent on oil and nuclear and it was very sensitive. If something happened, we would need to have other ways of generating energy in the crisis situation. So actually very early the Swedish civil military, Bureau of civil military planning, provided funds for bioenergy plants and also for bioenergy research." In this case we can see that a strategic recognition was embedded in a different type of social institution.

Apart from the political sphere at the institutional level it is for bioenergy also important to gain recognition in educational programmes of vocational and professional institutions. This legitimacy is still not there yet completely (it has been therefore elaborated as a negative factor in chapter 5.2.4), but in the case of Mr. Lundberg it is important to point out, that he was lucky to be taught by a progressive professor about bioenergy when he was a student in the 1970s. According to Aldrich and Fiol[89] entrepreneurs in new industries also face constraints because they do not have a role model they can look up to. This dynamic professor at the Royal Institute of Technology was sort of a role model, because he was very charismatic, took a strong standpoint against nuclear power, had a deep engagement in renewable energy and as such triggered Mr. Lundberg's interest in bioenergy. This professor can therefore be considered as a positive factor at the institutional level.

To conclude this section it is apparent that in Sweden bioenergy is better accepted today at the institutional level than in the past. Furthermore, the perception is also that there are a growing number of articles in the media about bioenergy.

5.2 Negative Factors That Hindered the Existence of TallOil

As a representative of a new industry Mr. Lundberg and consequently TallOil have faced several obstacles, which posed a challenge to the development of the company. Here they presented along with the measures by which Mr. Lundberg tried to surmount them.

5.2.1 Negative organisational factors

On of the problems at the organisational level that was identified were the different views between Mr. Pehkonen and Mr. Lundberg about the future of TallOil. The two gentlemen founded the company together, but as the time went by their attitude towards it started to differ.[90] On one hand Mr. Lundberg was a strong bioenergy believer and saw many

[86] In the years 1984-1985 Mr. Lundberg worked with the government as a consultant within the Delegation for energy procurement, see also the chronological view in chapter 4.3.1.

[87] Henrik Lundberg (19/6/2006), personal interview.

[88] Bo Hektor (26/6/2006), personal interview.

[89] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation.

[90] The way the relationship between the two gentlemen evolved is very interesting, because their roles in the company changed substantially over the time. At the beginning, when the company was founded, it was Mr. Pehkonen who did most of the work, because Mr. Lundberg was still heavily involved in the work at TPS. Because they had an [0]agreement

opportunities how to build up the company, but on the other hand Mr. Pehkonen did not see the future of the company in the same way and had other plans how to use the profit. As already mentioned, these differences lead to the mutual agreement to split up..[91]

Box 5-2 Different phases in Swedish energy R&D

There are basically three periods that can be identified in the Swedish energy R&D from the year 1975 up till today:

- 1975 – 1978: broad surveys and screening of basically all energy alternatives.
- 1978 – 1985: focus on commercialisation of technologies and short-term solutions, primarily aimed at reducing oil dependence.
- from 1988 on: the research is more long-term and academically based (between 1985 – 1988 there was a short transition period caused by drops in oil prices).

The different phases are also reflected in government spending on energy R&D, depicted on the figure below.

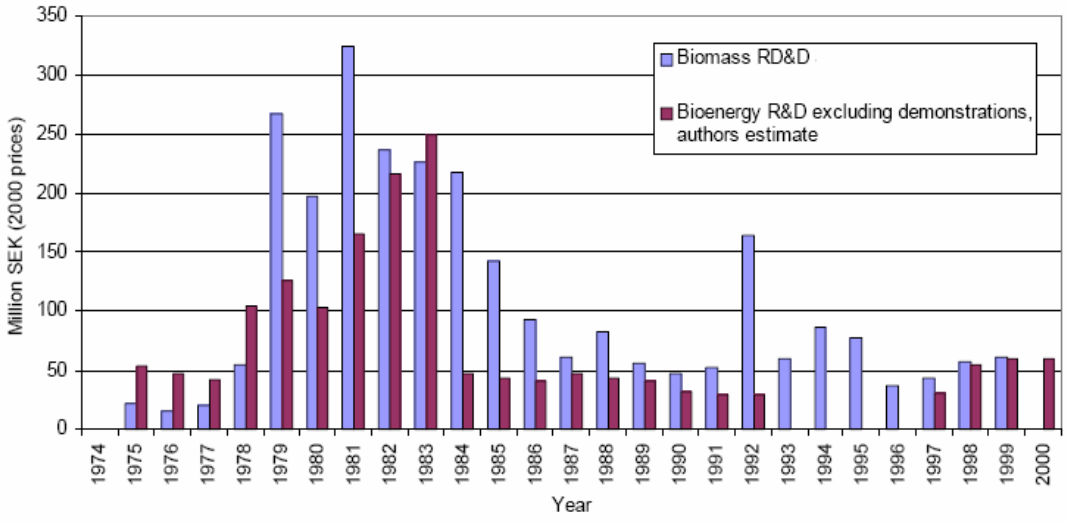

Figure 5-1 Government annual spending on biomass R&D in Sweden from 1975 to 2000

The figure shows that before the transition period (right after the 2nd phase) the government spending was very high and the trend coincides with both oil crisis and later drop in oil prices. The reason why the government spending is that low in the 3rd phase is due to the perception that knowledge in the bioenergy field is already well developed and the gains from additional R&D efforts would be small, although some areas, such as combustion/gasification and ethanol production have continued to receive steady levels of governmental funding. (Mr. Lundberg has as a researcher and an entrepreneur been a part of these trends and was also actively involved in the distribution of the financial resources in the Delegation for energy procurement - see text above).

Source: Johansson et al (2002).

that any income from the operations would be divided proportionately to the work, it was Mr. Pehkonen who received the major share of the income. With Mr. Lundberg getting more involved in TallOil this ratio started to change.

[91] The author of this thesis does not by any mean consider the conduct of Mr. Pehkonen wrongful, and so does not Mr. Lundberg. The only intention is to present the differences in enterpreneurial thinking between the two, without judgment and evaluation. Mr. Pehkonen and Mr. Lundberg are today still very good friends.

Consequently the obstacle at the organisational level resulted in different levels of legitimacy that both partners assigned to the new venture. For Mr. Lundberg the legitimacy of this venture was high enough that he could see the potential for further development.

An organisational problem that is becoming more evident in the last years due to the rapid growth is related to recruiting. If TallOil today publishes a job advertisement, probably many candidates will apply. However, finding the really competent people is the problem. Bo Hektor, a senior employee and a previous professor in forestry and bioenergy at the University of Uppsala, says that the lack of competent people is already present, because most people in the business today do not have a formal education in bioenergy.[92] With bioenergy sector expanding, he thinks there will be a shortage of competent people in the future as well. According to him bioenergy is not popular among students and Mr. Zakrisson, a junior employee at TallOil, also says:"I finished the university in 2002 and we were 2 or 3 people that were kind of niching into bioenergy. And other were more or less laughing at us... Not laughing at us, but they were thinking 'oh no, that's boring and that's not interesting'."[93] The problems related to education will also be elaborated in chapter 5.2.4 at the institutional level.

Surmounting the organisational obstacles

In the situation where there were different views, Mr. Lundberg did not have much choice how to persuade his partner to accept the expansion of TallOil. As a partner which was also in an inferior position at the beginning, Mr. Lundberg could discuss with him, but the solution came when Mr. Pehkonen decided to take on a power plant project in south-east Asia and therefore leave TallOil. So he bought him out, continued with the expansion on his own and systematically searched for a partner with whom he could share his vision and expansionary plans (which turned out to be Mr. Forsberg).

The problems related to recruitment of competent people are being solved by trying to identify who the bioenergy experts are and persuade them to join the company. The good reputation TallOil enjoy's today is certainly also helpful in this process. So it is a lot about finding and getting bioenergy experts and bioenergy believers in the company.[94]

5.2.2 Negative intraindustrial factors

In chapter 5.1.2 the lack of competence of newcomers was already mentioned as an issue. On the short-run TallOil can even make a profit out of it thanks to their competences, but on the long-run this could harm the reputation of bioenergy and hamper the success of the industry.

This is a problem that arises today, but another problem that TallOil encountered in the 1990s were the activities undertaken by their big competitor, also a big supplier of tall oil products (and a supplier of tall oil pitch in Sweden). In the mid 1990s it happened twice that this competitor bought up TallOil's supplier of tall oil pitch and in both cases they terminated the contract with TallOil.

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[92] Bo Hektor (26/6/2006), personal interview.

[93] Mårten Zakrisson (29/6/2006), personal interview.

[94] During his field work in the company's working premises the author could see himself that TallOil managed to attract bioenergy experts, some of them also having good reputation at the national and even international level.

An additional problem at the intraindustrial level was identified by Mr. Zakrisson.[95] When TallOil entered the pellet business in 2003 this industry was not really a new industry anymore, but also not a mature one. The existing standards for pellets in Sweden are according to Mr. Zakrisson by some suppliers regarded as a bit too broad. Consequently TallOil as a newcomer offering pellets from Latvia faced at the beginning denial of legitimacy at the intraindustrial level, because when competing for contracts, their competitors would sometimes tell the potential customer not to buy the pellets from them (i.e. Latvian pellets). Mr Zakrisson says:" […] I am sure they would say their product in a way is better, that you could not trust the Latvian product."

Hence we can see above that some unhealthy competition is possible. This is probably not good for the legitimacy of this industry, but the question is how far this can be avoided and let the positive effects of many companies prevail. How TallOil reacts to it is presented in the paragraphs below.

Surmounting the intraindustrial obstacles

As far as the lack of competence among the newcomers is concerned TallOil is engaged in improving their knowledge in a limited way. As already mentioned, they can even make some advantage out of it by improving their position against the competitors. Nevertheless, Mr. Lundberg's attempts of presenting his company and spreading the knowledge can surely be considered as a way of dealing with this obstacle. This is clearly a case of balancing between retaining competitive advantage on one hand and trying to help the other companies for the sake of the whole industry on the other hand.

The problems with the suppliers and their competitor had to be solved by finding a new supplier every this competitor would terminate the existing contract with them. The producers ranged from America to Russia and central Europe.

The situation with pellets and supposedly lower quality of their Latvian offerings is dealt with in two ways:

- TallOil is a member of PIR (Pelletsindustrins Riksförbund – The Swedish Association of Pellet Producers). PIR represents the pellet industry in Sweden and spreads general knowledge about pellets. Being a member of this organisation together with other Swedish pellet companies helps TallOil to get legitimacy and recognition at the intraindustrial (pellet) level.[96]

- Individually spreading information about their products (pellets) showing to the interested customers that they are good enough.

A suggestion from Mr. Zakrisson how to deal with these problems in general and to prevent fierce individual competition which would at the end harm the whole industry, is more co-operation in the sense that pellet companies would develop a system where they would buy

[95] Mårten Zakrisson (29/6/2006), personal interview.

[96] PIR is closely connected to Svebio, because the person representing PIR works for Svebio as well. One of the campaigns run by PIR for the last two years is called Pellets värme – framtids värme (Pellet heat – the future's heat). Mr. Zakrisson says about it: "[…] There was a nationwide campaign sponsored by the pellet industries to increase the knowledge among general people, to have adverts e.g. in the Swedish homeowner magazine (Villaägare) and things like that. So to increase the general knowledge, not the TallOil knowledge necessarily, but of course all the logos were in the vouchers […]." (Mårten Zakrisson, 29/6/2006, personal interview)

pellets from each other's warehouses and supply their customers from there (as it is the case with traditional fuel companies). This way the pellets would not have to be delivered from a remote warehouse but from the closest one.[97] With companies like OK Q8 entering the market such development can be expected.

Generally speaking, the enhancement of legitimacy of bioenergy at the intraindustrial has also been enhanced by Svebio, for which it has already been mentioned that Mr. Lundberg and TallOil play a very important role in.

5.2.3 Negative interindustrial factors

One of the first obstacles Mr. Lundberg had to deal with at the interindustrial level when he became an entrepreneur was the lethargic attitude of municipal district heating companies. Managers running them were not willing to take any risks. Mr. Lundberg says: "[…] these municipal district heating companies […] were in those day run as institutions with very small competitive powers and it's easy to run these organisations, because when you have them you have practically a monopoly. And if you just run them smoothly and nicely and nothing much happens than nobody can blame you. You will always be secure."[98] In a situation like this it was very difficult for bioenergy to make its way in the district heating sector before it started moving. For Mr. Lundberg this was a major hindering industry.[99] The attitude of district heating companies is in more detail explained in box 5-3.

An unfortunate situation for Mr. Lundberg was also that in the early days peat had more legitimacy than 'real' biomass.[100] In the 1980s, when he worked for the Energy commission the majority of the investment grants for district heating plants went to peat fired district heating plants. This was a big letdown for those working with wood biomass.

Besides peat there were other sources of energy that posed a threat to the development of bioenergy (and also other renewable energy sources), and in this case especially nuclear energy has to be mentioned. Already in the 1950s the nuclear energy started to become seriously discussed in Sweden (just like in the rest of the world) and this continued also in the 1980s when nuclear power plants were built. They were extremely competitive, because they supplied electricity at low cost and resisted bioenergy and their behaviour was encouraged by consulting companies. Mr. Hektor says:"[…] it was an inborn resistance from the big energy companies like Asea and all the consulting companies like ÅF and Scandia Consult and everyone. Because they thrived on consultant jobs for Asea and others and they had to support them."[101,102]

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[97] The customer would in such case still receive the invoice from the original selling company, although the pellets would be delivered from another one. The two pellet companies would of course also have an established clearing system for transactions of this kind.

[98] Henrik Lundberg (19/6/2006), personal interview.

[99] Because district heating companies are very closely connected to political decision makers they could be identified also as a hindrance at the institutional level. But on the other hand they are also an important industry in the energy field, therefore they are in this thesis included in the interindustrial sector. Nevertheless, the political influence in the decision making of these companies is elaborated in chapter 5.2.4.

[100] As already mentioned in chapter 1.1, peat has in Sweden been regarded as a renewable source of energy, but EU classifies it as fossil fuel.

[101] Bo Hektor (26/6/2006), personal interview.

[102] This is actually an important normative factor, where representatives of an occupation establish a common ground and fight for their own legitimacy (DiMaggio, P. J., and W. W. Powell, 1983, p. 152).

But when a big energy company finally entered the renewable energy sector instead of resisting it (renewable energy was a fact and it could not be resisted endlessly), such attempts were not always favourable for Mr. Lundberg. When a major power company bought Studsvik in 1991 for example (the predecessor of TPS), the company was according to him doomed because it wanted to pick out the experts and shut down the remaining company. He described these events as follows:"[…] We thought that now Studsvik would get lots of resources […], but what they really wanted to do, they wanted to pick out handful of our people and shut down the rest. And we didn't want that, we thought we had much more to offer than that, so we wanted to form our own company through management buy-out and we managed to get this down after a lot of turbulence. […] The company was broken into two pieces, what became TPS, Termiska processer, 1st of July 1992 with the support of the government at those days and with 7 companies owning 50.1% and the personnel 49.9%. And we also managed to get a development contract with the Global Environmental Facility Fund through the UNDP and it was big development contract, if I remember correctly 7 million USD or something like that."[103]

Nowadays the relationships with other existing energy or any other companies are not that hostile anymore, because bioenergy is more a mainstream energy then ever before. However Mr. Forsberg and Mr. Lundberg still point out the lack of knowledge in the industry, where bioenergy is not known well enough, or people there do not even know that it is a renewable source of energy.[104] Furthermore some resistance can be noticed because bioenergy is subsidised, meaning that the traditional energy producers and big consumers finance the development of the bioenergy sector. But this is more resistance against the current energy policy than bioenergy itself.

[103] Henrik Lundberg (19/6/2006), personal interview.

[104] Henrik Lundberg (19/6/2006) and Göran Forsberg (20/6/2006), personal interviews.

Box 5-3 The attitude of district heating companies

In this box the behaviour of district heating companies when it comes to bioenergy is explained. The question is what is the reason for their conservative standpoint.

For these companies it has been important to produce cheap energy without interruptions. Using fossil fuels (mostly oil) meant cheap production which was easy to plan. Capital intensive technology and simple logistics made it possible to reduce manpower and increase the combustion efficiency. Therefore the development of boilers for other type of fuels was hardly existing or was at least lagging behind the development of oil boilers. Oil is also a homogenous fuel and the amount of produced energy is easy to calculate relative to the input of fuel.

Forest fuel containing various types of wood, forest residues etc. is very heterogenous, with different moisture and energy content. Storing and supply is also different than in the case of oil. When calculations were done for a new investment, price of raw materials, number of operating hours, maintenance, economic lifetime of the installation and neecessary manpower, they often lead to the conclusion that an oil boiler was the best alternative. A more expensive solution was also difficult to be accepted by the local residents. The differences between both type of installations are presented in the table below. Notice that the table is from 1981 and that the technology has changed a lot in the meantime. But it is a good depiction of the situation at that time.

Table 5-1 Pros and cons of different fuel types as seen by district heating companies

Forest-fuel installation	Oil installation
Uncertain short-term supplies from many suppliers	Certain long-term supplies from few suppliers
Local supply	Remote supply
Heterogenous product	Homogenous product
Difficult to store, needs space	Easy to store
Smoke gas, ignition risk	Controllable technology
Labour intensive handling	Capital intensive handling
Unaccustomed work	Accustomed work
Many uncertain factors in the calculations	Well-defined calculations

With increasing oil prices other unused sources of energy such as forest energy and peat became interesting, and there was an excess of labour plus the state offered grants. But it was not that easy (and still is not), because many managers of these plants did not want their activities to be interrupted with completely new approaches. Many communities decided to adopt a wait-and-see policy, stressing the need of secure supplies, uniform quality and low prices. However, those that have waited too long are today in a less favourable position, because oil is today more expensive than forest fuels and the taxation favours renewable sources of energy. Before such companies manage to retrofit their installations and secure contracts with biofuel suppliers, they lose a lot of money on more expensive oil supplies.

Source: Hektor, B., and J. I. Lind (1981) and Bo Hektor (14/8/2006), personal interview.

Surmounting the interindustrial obstacles

What Mr. Lundberg could do personally in the case of district heating plants was again his 'missionary' work, i.e. presenting the advantages of bioenergy. But most of all it was important to search for those plants where management was aware of the new opportunities and willing to take risks. This was the case with Stockholm Energi and Söderenergi, TallOil's first customers. His personal characteristic of being a believer, a visionary and a stubborn person was very helpful in this situation.

As far as other energy companies are concerned it has never been Mr. Lundberg's attempt to openly challenge them. Even today he considers TallOil to be an underdog company. He has rather co-operated with them, like in the case of the pellet factory in Vålgårda in 1981 where an oil company joined the project, also as a result of his persuasion. It is also important to mention again that tall oil pitch is (luckily) a niche business and therefore could not have been regarded as a real threat to existing industries. On the contrary, these companies sometimes threatened TallOil or other companies owned by Mr. Lundberg (e.g. the case of the big power company and Studsvik), where the solution was to find a way around it (e.g. leaving Studsvik and founding TPS).

The competitive situation with peat ended up as very favourable, because they today burn other types of biomass. "[...] I think that looking at it in the long run there was a great infrastructural investments being done and many of those plants firing peat in those days they are now firing wood chips or forestry residues instead. So it might not have been so bad after all," says Mr. Lundberg.[105]

Again also at this level Svebio has played an important role, where united bioenergy companies can more or less successfully face the existing resistance from other sectors. This is very important in the case of resistance from other industries because of the subsidies for bioenergy. Here a united bioenergy industry can make a stand for legitimacy.

5.2.4 Negative institutional factors

Although Sweden can be characterised as a country where bioenergy is better established than in other countries, the bioenergy sector still has to fight for legitimacy at the institutional level, starting with the political decision-makers. What the interviewees at TallOil pointed out are changing preferences of politicians and hence lack of trust that they and especially the government will keep supporting bioenergy.[106] Mr. Borg is very clear on this:"There are some specific problems in energy sector and that is that it's very politically affected. I mean you have policy changes that are very hard to predict, that are subject to change during very short amount of time sometimes. It creates problems sometimes, because […] it adds to uncertainty to you as a businessman […] You work with a lot of utilities, public partnerships, public utilities and they are hard to work with. It's hard to develop a scalable business model [...] because they are not working according to the cheapest cost for example. They are working in accordance with the logic of politics which means that the emphasis is not always to create the best solution from a business viewpoint, from an economic viewpoint, but from a political viewpoint and that is of course a problem if you want to build a big company. If you have to, each customer relationship becomes very difficult and very time consuming, so that I would

[105] Henrik Lundberg (22/6/2006), personal interview.

[106] E.g. Henrik Lundberg (22/6/2006), Anders Borg (22/6/2006) and Göran Forsberg (20/6/2006), personal interviews.

say is another problem which is specific [...] for bioenergy, because of the customer structure."[107,108]

The history shows this changing political support. After the oil crisis in the 1970s the interest of politicians in bioenergy (along with other renewable sources of energy) increased, and also Mr. Lundberg could make use of it (see e.g. box 5-2 and chapter 5.1.4). The policy of the energy minister Birgitta Dahl in the 1980s was to keep the oil price growing and to make other sources of energy more competitive. However when the oil price dropped in the mid 1980s this policy was impossible to be followed. Mr. Lundberg remembers this time very well:"[…] when the oil prices dropped […] the government could not hold steady. They had to yield to market forces and the oil price dropped substantially. And many people who put stakes into bioenergy and peat went bankrupt and lost a lot of money. And the beginning booming market for bioenergy got substantially hampered by this development. I managed to keep my nose over the water, I had a very hard time for a number of years."[109]

Combined with the unfortunate events on the oil market, the governments have also been involved in nuclear energy, because the nuclear power plants are stately owned. On one hand the governments did support renewable energies, but on the other hand nuclear energy was for a long time high on the agenda. Mr. Hektor describes this phenomenon as two schools of thinking stemming already from the 1950s:[110]

- One school of thinking was supporting decentralised energy systems based on district heating and cogeneration.

- The other school of thinking was very hi-tech oriented and fascinated by the nuclear energy.

The reason why the nuclear school won the political support is according to him the following:"[…] the nuclear with high-tech […] was supported by companies like Asea, ABB nowadays, and also the Swedish government strangely enough. It's not so strange, because […] we had a social democratic government for a long time, but at that time they were more social than democratic. They were reading their Lenin and Marx, saying that energy supply is a vote for the government and it's the healthiness of people and so on. So at that time it was the energy supply, the energy wasn't really discussed in any other term than the political. So it was much easier for a social government to support big units […]. Well anyway, it ended with a total success for the nuclear school of thinking, so Sweden very quickly developed a nuclear system with nuclear power where we had the highest nuclear power per capita in the world."[111]

The result of this support for the nuclear energy was very negative. With two additional power plants built in the 1980s there was a surplus of cheap energy, and the government had to find a market for it (after all this energy came from the plants the state owned). It was therefore sold without any taxes, with grants for investments in installations and people were allowed to

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[107] Anders Borg (22/6/2006), personal interview.

[108] This problem of changing political preferences, influence of interest groups and importance of fixed rules of the game for entrepreneurial decisions have been deeply elaborated by James McGill Buchanan in his theory of public choice. For his work he received the Nobel Prize in Economic Sciences in 1986 (Nobel Foundation, 2006).

[109] Henrik Lundberg (19/6/2006), personal interview.

[110] Bo Hektor (26/6/2006), personal interview.

[111] Bo Hektor (26/6/2006), personal interview.

build houses without chimneys (due to electric heating).[112] So this time (from the mid 1980s to 1991 when CO_2 taxation was introduced) was a very hard period for bioenergy entrepreneurs like Mr. Lundberg and also Novator, company owned by his friend Mr. Ljungblom, almost collapsed.[113]

Nowadays even if bioenergy in Sweden has an official support and there might be an impression that it is widely accepted (also because of the Swedish strategy to become a nation independent from oil), it still needs more legitimacy. It can namely still happen that e.g. the financial department wants to impose levies on biofuels like on fossil fuels, due to the lack of understanding what bioenergy is.[114] Furthermore as mentioned at the beginning of this section, the customer structure (public utilities) is such, that political decisions are sometimes made in these utilities instead of economical. Such decisions are not always favourable to TallOil and they do not allow solely the business calculations to prevail which would in turn create the possibility to plan and forecast.

The role of educational institutions, the other important sphere at the institutional level is difficult to asses. As already mentioned in chapter 5.1.4 it was the university where Mr. Lundberg developed his interest for bioenergy thanks to his professor. Also the results of the survey in appendix II, chapter AII.2.1, question No. 7, show that these institutions supposedly do create knowledge and spread information about bioenergy. But it is questionable how many bioenergy experts come out of these institutions. In chapter 5.2.1 we have already identified it creates a problem at the organisational level during recruitments and searching for competent people (the problem of lacking competence in various bioenergy companies was also brought up in e.g. chapters 5.1.2 and 5.2.2).

Mr. Hektor, previous professor at the University of Agricultural Sciences in Uppsala, who also founded a bioenergy department there is critical about the position of bioenergy in educational institutions. His comment is that there are very few text-books available and few good teachers that could educate experts. "Having good teachers, good teaching material, I think that's the most critical factor for the future," says Mr. Hektor.[115]

Again to connect with the organisational level it can be said that being in an expansion phase TallOil will need to employ new people. They managed to employ some of the best experts in this field but they will need more of them, especially young people with new knowledge. The interest for working for them is high, but they admit they have difficulties finding really good bioenergy candidates among all of them that apply for a vacant position. Lack of legitimacy in the educational sphere is therefore an obstacle for TallOil.

Surmounting the institutional obstacles

It is very questionable what a company like TallOil can do alone in order to gain legitimacy for its business at the institutional level. Especially political and educational institutions tend to be conservative and a lot of time and energy is needed for significant changes in them. But there

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[112] Lennart Ljungblom (27/6/2006), personal interview.

[113] Mr. Ljungblom saved Novator by selling the one asset thay had, i.e. the magazine Bioenergi to a private publishing company. This publishing company could not make a good business out of it, so Mr. Ljungblom bought the magazine back in 1991 for SEK 1.00 (one Swedish crown). This happened just before the bioenergy upswing and so he has managed to run the magazine successfully up to the present days.

[114] Göran Forsberg (20/6/2006), personal interview.

[115] Bo Hektor (26/6/2006), personal interview.

are some facts that TallOil might make use of in gaining legitimacy for the company and the industry as a whole:

- They are a member of Svebio and this way they can be a part of a united collective action. E.g. bringing the Swedish prime minister Göran Persson to the World Bioenergy Conference, organised by Svebio and with TallOil being the main sponsor, is a sign of some very considerable legitimacy at the highest political levels and an example of a successful action.

- In an indirect way TallOil has some linkages with the established educational curricula, because Göran Forsberg and Bo Hektor were both professors at universities before joining TallOil. Furthermore TallOil is involved in research work and co-operates with researchers in Sweden and at the international level (IEA). These researchers are often connected to educational institutions.

To conclude this chapter, it is difficult to assess how far the above portrayed linkages can be used by TallOil alone in order to gain legitimacy at the institutional level. Collective action is normally the solution in such cases. But having these linkages and these people employed is good for them, one way or another.

6 Discussion

The three sections presented here constitute the discussion: the positive and negative factors together, the special role of the forest industry and the role of bioenergy networks for TallOil's existence.

The discussion will provide insights into how positive and negative factors appear when regarded in a summarised form. In the previous chapter they were namely analysed at each level separately and in this chapter they are looked at "from above". In this context also the means of surmounting negative factors and positive factors will be compared with the ideas of Aldrich and Fiol how legitimacy can be obtained (as presented in chapter 3.3). Furthermore it will be seen that forest energy is a very complex unit and this complexity must be taken into account when developing the bioenergy sector (especially in the countries, where bioenergy originates from forest platforms). The discussion ends by showing how important and above all how useful it can be for a bioenergy company to operate within a constructive bioenergy network.

6.1 Positive and Negative Factors

The positive and negative factors presented in chapter 5 are in this section summed up as seen in the table 6-1 below. Positive factors are those that were and still are helpful for TallOil to get legitimacy and negative factors are those who have been making it harder for TallOil to get it.

Four observations can be made from the table:

1) Most of the hindrances seem to appear at the interindustrial level

2) Some issues appear on both the positive an the negative side, sometimes even at different levels

3) Positive factors combined with proper means of surmounting negative factors appears to be a useful combination for gaining legitimacy

4) There are some external factors that are above all the four levels

5) Novator and Svebio were given a special role

Ad 1) The fact that most of the hindrances are listed at the interindustrial level does not mean automatically that this level is also the most difficult to deal with, because the quantity is not decisive. Nevertheless, among all the negative factors, Mr. Lundberg pointed out the resistance at the interindustrial level as the strongest one, primarily from district heating companies but also from other industries which were affected by the new taxation. These companies did not act directly against companies like TallOil, but their actions affected the political decisions. In such cases TallOil or Mr. Lundberg were affected directly.

Even with district heating companies becoming more open for bioenergy, this does not mean that the barriers are more or less gone. A combination of interindustrial resistance and instability of political decisions represents a big obstacle for a new industry. An example given by Mr. Lundberg shows how detrimental such a combination can be: "[…] we had a paper industry in south Sweden that were using oil, heavy fuel oil for their heat production, steam

production, to power their dryers. [...] it was in the beginning of the 90s actually, they investigated together with us the possibility to retrofit or to build a new power station to replace the old steam central and the economics of it was really really good. But it was in the same instance that we had what was called the wonderful night between the socialdemocratic government and some of the conservative parties when they decided jointly to make a joint common energy policy which meant that the tax, the oil tax, the tax for fossil fuels for industry decreased. The energy tax was taken away and the CO_2 tax was substantially reduced. And the project that we had planned for two years together with the industry and with the cheers from the national energy administration and which was interesting for everybody concerned over night was lost. [...] So I would say that [...] one of the difficulties in establishing a bioenergy operation or running bioenergy and expanding bioenergy is lack of trust that the governments or that the rules for bioenergy will be consistent and the same in the long run so it is possible to make trustworthy calculations, asssumptions, and forecasts for profitability of new projects."[116]

Successful pressure exercised by powerful industrial players and the submission of politicians is still a reality feared by the new industry and this concern also came across during the interviews. In such reality a small company with a new venture and lack of legitimacy has to find a way how to make its survival possible. A useful combination of solutions appears to be:

- Spreading knowledge and information
- Finding progressive companies and co-operating with them
- Collective action (e.g. through Svebio)

Ad 2) Going on to the next observation that some issues appear as both positive and negative, it can be assessed that it is actually not surprising. There are always two sides to a coin and pure black and white situations are rare. Like for example the customer structure which is a very complex issue as a matter of fact. We have seen that at the intraindustrial level it can work as a positive driver, because the inquiries have standard specifications and contribute to the consolidation of the industry. But we have also seen that this same structure can affect the business negatively, because business can be subject to political decisions and political preferences (that is why it is in this case considered as a barrier at the institutional level).[117]

Another example: if we take a look at district heating companies and consider them as another industry (hence being at the interindustrial level), those that are willing to try new things and are willing to take some risks can be a really strong positive driver, but on the other hand they can be ran by managers resisting the new energy sources and consequently hindering the development of the new industry. Being a large user of bioenergy it is extremely important to have them on the positive side.

Companies in the forest industry have been described in more detail in chapter 6.2. Those that see a business opportunity in forest energy can enter the business and be a positive driver at the intraindustrial level, but those that see this energy as a threat will pose a hindrance at the interindustrial level.

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[116] Henrik Lundberg (22/6/2006), personal interview.

[117] Sometimes such decisions can be good for bioenergy, but we rather consider this phenomenon as negative, because for business decisions and calculations it is best not to be disturbed by such unpredictable influences.

Of course politicians also appear on both sides, because the political arena is split between different groups who also act opportunistically. Since the 1970s it can be said there has always been some political support for bioenergy in Sweden, but to different extents. Obviously the opponents have also been there and in the case of e.g. nuclear energy they were very successful.

Ad 3) In chapter 3.3 ideas by Aldrich and Fiol are presented, what can be done and what is necessary in order for a new industry to gain legitimacy at different levels. They are here elaborated at each level in relation to TallOil and Mr. Lundberg.

At the organisational level Aldrich and Fiol stress the importance of the entreprenuer's personality, his ability for emphatic and symbolic speeches, and consistent story telling. Mr. Lundberg has these capabilities which are also embedded in his entrepreneurial drive. As far as consistent story telling is concerned, we saw in chapter 5.1.1 (box 5-1) that this could be a bit improved but cannot be estimated as negative. Additionally what proved to be very useful for TallOil was to hire people who already shared the belief in bioenergy so probably less emphatic speeches are needed in such case.

At the intraindustrial level Aldrich and Fiol underline the importance of convergence towards a dominant product/service design and collective action (collaboration, trade associations). TallOil is a part of collective action (e.g. Svebio, PIR – The Swedish Associaton of Pellet Producers). As far as the convergence around desing is concerned, TallOil is involved in standardisation to a limited extent, but Svebio is seen more as a place for such collective action. Convergence around a dominant desgin has also been encouraged by the customer structure, where big buyers have their standardised specifications. So in case of TallOil we can see that standardisation is more an issue of some other actors and the company also remains non-imitable to some point (mostly due to the knowledge embedded in the employees).

At the interindustrial level Aldrich and Fiol stress promotion through third-party actors, negotiating and compromising with other industries. TallOil shows that this approach is very useful. Promotion through Svebio, searching for progressive industries and co-operating with them, and of course the pure fact that because of different reasons other established industries are becoming interested in bioenergy (like OK Q8 for example) this all contributed to increased legitimacy. One important factor that should be mentioned again is also the support of the Association of Swedish farmers. TallOil's success is in some way linked to an established institution of small scale forestry in the agricultural sector. Having another industry on board is extremely useful for a new industry.

At the institutional level Aldrich and Fiol give emphasis to linkages with established educational curricula and communication with institutions through collective marketing and lobbying. Again TallOil in combination with Svebio shows that collective actions are indeed necessary at the institutional level. Novator's involvement in the media is useful, but it is not enough. We have also seen earlier in this thesis that tighter links with educational curricula are necessary. Today's shortage of educated bioenergy experts is already a problem today and is expected to be present in the future as well.The advice of Aldrich and Fiol will have to be followed.

Consequently we can see that the suggestions by Aldrich and Fiol turned out to be useful in the case of TallOil. Some possible variations emanate mostly from the existing and helpful positive factors (like e.g. at the organisational level where Mr. Lundberg has managed to get legitimacy by hiring bioenergy believers).

Ad 4) The predominant external factor which cannot be included at any of the four levels but affects all of them are prices of fossil fuels, most of all oil prices. With low oil prices it is difficult to keep a bioenergy alive. Its legitimacy will be questioned at the organisational level, the intraindustrial level will remain undeveloped, the interindustrial level will have a very strong argument against bioenergy and the same goes for the institutional level.

Industry is very powerful when lobbying for cheap oil, because it is dependant upon it. However as we can see from the history (and also today), when the oil prices go up and governments cannot sustain low prices for the industry anymore, other fuel sources become interesting.

Fortunately the environmental issues (another external factor) that are nowadays becoming more and more important can counteract the influence of oil prices, but only to a very limited point. High oil prices are still a better driver for TallOil than environmentally conscious individuals and politicians or environmental organisations.

Ad 5) Novator and Svebio have played an important role in the life of Mr. Lundberg and therefore also for his company TallOil. He was one of the co-founders of Novator in 1977, which was his first company and already there he had to deal with issues of legitimacy at all four levels, which also resulted in the creation of Svebio. In Novator he got some valuable experience how to deal with issues of legitimacy in his subsequent ventures. Both organisations and their relation to TallOil have been described deeper in chapter 6.3.[118]

[118] Today, when Novator is ran by Mr. Ljungblom and years have passed since Mr. Lundberg has left it, he still describes the role of Novator as very important for bioenergy industry.
Novator is a forum, a publishing company (the magazines Bioenergi and Bioenergy International), a meeting place etc., and as such it is important for influencing the thinking at all four levels in a positive manner. It appears to be an important normative point.

Table 6-1 Positive and negative factors affecting the existence of TallOil

Level	Positive factors		Negative factors	Means of surmounting the negative factors
Organisational	• Mr. Lundberg's entrepreneurial drive • Belief in bioenergy among the employees in TallOil	NOVATOR & SVEBIO	• Differences between the major partners in TallOil, Mr. Lundberg and Mr. Pehkonen • Problems in recruting competent bioenergy experts	• Discussion, but the solution came when they mutually agreed to split • Searching for experts and persuading them to join TallOil
Intraindustrial	• Tall oil pitch was a niche product • Customer structure that supports standardisation of products • Competences gathered in TallOil make the company difficult to copy and give it a competitive advantage • Some forest companies entering the bioenergy business		• Lack of competence of the newcomers • Actions of their competitor, which bought TallOil's suppliers and terminated the contracts with them • Unhealthy competitiveness of other pellet suppliers, spreading bad information about TallOil's pellets	• Spreading knowledge • Finding new suppliers • Joining industrial associations • Closer co-operation among companies
Interindustrial	• Some established industries interested in bioenergy • Some district heating companies willing to use new sources of energy • Support of the Association of Swedish farmers • To a point co-operative banks		• Lethargy in district heating companies • Peat had bigger legitimacy than forest fuels • Resistance from some forest companies • Nuclear energy • Behaviour of big energy companies • Lack of knowledge about bioenergy in other industries and resistance against the current energy policy	• Spreading information • Finding progressive district heating companies • Co-operation with other companies • Contacts with Svebio and collective action
Institutional	• Politicians and policy (the taxation system, support for R&D, investment grants • The army • Mr. Lundberg's professor at the Royal Institute of Technology • Media recently		• Politicians and policy (changing preferences, unstable rules of the game) • Government's involvement in nuclear energy • Customer structure that allows political influence and political decisions instead of only economical • Lack of text-books and good teachers regarding bioenergy in educational institutions	• Collective action through Svebio • Some linkages with educational institutions • Co-operation with researchers in Sweden and internationally
	EXTERNAL FACTORS			

6.2 Role of the Forest Industry

We have already seen in the table 6-1 that the forest industry can be either a positive or a negative factor. Its role in the Swedish bioenergy sector is actually so complex that it is discussed in this separate section.

After both oil crisis in the 1970s, in the advent of bioenergy R&D in Sweden, a study was done by Bo Hektor and Jan Inge Lind about its importance for the forest industry and about the stance of the actors in this industry on this issue.[119] The actors in this industry differ and so do their positions against biofuels from forests. The findings are in the table 6-2 below.

Table 6-2 Biofuels – threats and opportunities for companies in the forest industry[120]

Business opportunity / Threat against the main activity	Marginal	Real
Weak	**A. SCA** **Korsnäs**	C. SÅBI
Strong	B. Billerud Iggesund	D. Södra Skogsägarna

In the table there are examples of companies in each cell. The symbols in the cell mean the following:

- A. Companies with competitive structure and relatively small problems with timber supply.
- B. Companies that perceive shortage of raw material as an important strategic threat against forest industry's activities.
- C. Companies with a good starting position to develop biofuel activities, but with a strong existing activity.
- D. Companies where the forest-industry base is threatened and where forest energy offers opportunities for re-orientation.

The company's position in the table determines its reaction to development of forest bioenergy. Companies like SCA and Korsnäs (pulp and paper companies) were put in cell A due to their big own access to forests and well functioning structure. They did not perceive forest energy as a big threat and they could not identify big business opportunities related to their primary activity. Companies in this category decided to keep a low profile concerning forest-energy issues and they appeared to wait to see where the general trend would move and what results forest research institutes would come up with.

Companies in cell B such as Billerud and Iggesund (also pulp and paper companies) represented the many other companies that felt the shortage of the raw material as a threat

[119] Hektor, B., and J. I. Lind. (1981). *Energi ur skogen – utopi eller möjlighet* [Forest energy – utopia or oppotunity]. Kista: Nämnden för energiproduktionsforskning.

[120] Modified from Hektor, B., and J. I. Lind. (1981). *Energi ur skogen – utopi eller möjlighet* [Forest energy – utopia or oppotunity], p. 38.

against their traditional activity. These companies undertook several actions, such as lobbying at the government to stop uncontrolled construction of wood firing installations or trying to get the hold of the raw material from forests themselves.

Furthermore as Mr. Hektor can recall, companies in the pulp and paper business did also support nuclear energy. He says: "[…] they were owners of a part of the nuclear programme, nuclear power stations were partly owned by the forest industry, because they had invested in the development and the reason of course to get cheap power for the especially for the newsprint and that type of paper production. But it was also another reason, the pricing system of pulp wood was organised in the way that you had central negotiations between buyers and seller. And the name of the game was to have a little more than you needed and you used that quantity to keep the price down for the suppliers. And they of course saw the risk if that changed, if the wood energy sector were to consume some of that raw material, than the balance in the negotiations could change and the price would increase. And then the price would increase not only for the quantities where you competed directly but also for the total quantities. […] So the forest industry had a double threat that if wood energy could prove that they could compete to a reasonable price for electricity, than the closing down of the nuclear stations, the power stations, would go much faster. But if they could not do it because they had problems in getting raw material […] then this cheap surplus energy from the nuclear power stations could be used by the forest industry. That was one side. And the other was the competition for raw material. So that was a genuine short sighted, but it was a genuine rather clever decision taken by the forest industry. So it was not a long-term strategy but short-term tactic. And it worked very well."[121]

In cell C there are companies that saw clear profitable business opportunities such as e.g. SÅBI (an association of sawmills, today owned by the Finnish Vapo Oy, a supplier of biofuels and heat). These companies could increase their incomes by expanding their fuel assortment and by finding new customers for sawmill chips, bark etc.

In cell D there are primarily associations of forest owners. They had have quite a difficult time fulfilling their role as suppliers to their own industries (they namely also run their own pulp production) and to the industries of their traditional customers and at the same time retain the trust of their members. This situation could have partly been resolved by development of new activities and opportunities for their members (e.g. a forest energy market).

As for TallOil and Mr. Lundberg, these different constellations had both positive and negative impact. The companies that were at the interindustrial level and were interested in stopping the advancing of bioenergy (and were quite successful in doing it) had of course made a hard time for him as well. What he could do in this case was to find his way around it and maybe try to get a company to co-operate with him. This was the case with the already mentioned pellet factory in 1981 in Vårgårda where also the national forest enterprise had its stake in it. Or another good approach was to invite them to join Svebio in 1979 and some of them actually joined it.

So what was good for TallOil was to have these companies at the intraindustrial level. As time went by some of them ended up at this level. If we for example look at the companies in the table 6-2, those with real business opportunities in bioenergy have also developed this activity. SÅBI is a big supplier of pellets and all different kinds of wood fuels and Södra Skogsägarna

[121] Bo Hektor (26/6/2006), personal interview.

offers basically the same assortment as SÅBI through the daughter company Södra Skogsenergi.

Also the type A companies that produce pulp and paper can today take advantage of the green certificate system, which supports production of green electricity (pulp producers account for producers of green electricity). But companies that produce only paper and cannot compensate the large consumption of energy in pulp facilities still resist, claiming that they subsidise bioenergy and are hence not treated fairly. The problem with them is that they try to create a bad image of bioenergy. This is a threat to bioenergy companies, because they can influence the public opinion and political decision-makers. Maybe this threat is smaller than years ago, but should not in any way be underestimated.

6.3 Importance of Bioenergy Networks

Companies cannot exist alone. They work in an environment which they interact with and very often they need some support. Basically they need networks and they exist in networks.

In this chapter we are not going to discuss the whole network TallOil exists in because that could be a scope for another research. We rather focus on the basic and initial network that gave rise to the company several years later.

The basic network from which TallOil emanated from is hence depicted below on the left side of the figure.

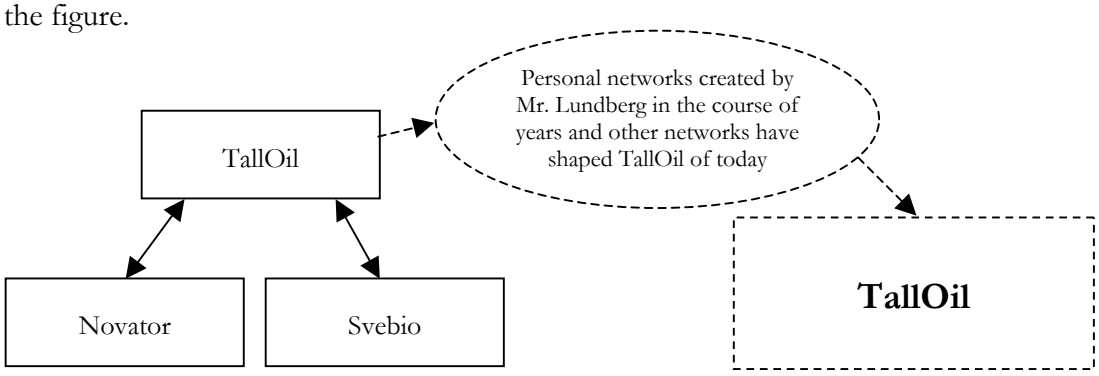

Figure 6-1 The initial bioenergy network that enabled TallOil

The right side of the picture needs to be researched deeper, because it represents the network TallOil exists in today (additionally to Novator and Svebio). This network cannot be described as less important than the initial one, i.e. the one on the left side of the figure (see also chapters 4.3 and 7.3). We already know what kind of an organisation TallOil is, let us therefore go a bit deeper now into Novator and Svebio.

Novator has turned out to be a very successful company and has experienced big growth throughout these years. It is in a way concentrated around the company Novator Handelsbolag (Novator HB), but the main purpose of this company is to protect the name Novator. The main commercial activities are concentrated around the publishing company Bioenergi Förlag with their main magazines Bioenergi and Bioenergy International.[122] Novator can be described as an agent that connects suppliers and users of bioenergy, i.e. it creates more

[122] Bioenergi Förlag was founded because the predecessing company Novator Föreningskonsult was not commercially successful and was sold off, being replaced by this new company. The youngest company in the Novator group is the Polish Biodest.

and more networks, predominantly in the business sector. But it is also important to know that it is very active in the media sector, creating legitimacy for bioenergy at the institutional level, where it is necessary to have newspapers and magazines that are familiar with the set of terms describing the activity and make accurate depictions.[123]

Mr Ljungblom says about Novator:"[...] we are most happy if we can really be on the edge of development all the time to talk to people and they can talk to us and they trust us. We are a commercial company in the way that we really are based on commercial things, we sell ads, sell subscriptions and we are working very very close with the companies. But the companies they trust us, they can talk to us, not their deepest secrets, but a lot of secrets and they know we don't talk about their secrets to other companies, but if we understand their secrets we can write the stories better so the market in general could use it. So in that way we have helped each other [...]"

Svebio on the other hand is also involved in creating networks, but unlike Novator it is purely a non-commercial organisation. Mr. Ljungblom says about Svebio: "[…] no interest in making money, otherwise than to pay their own costs. [...] The best thing is that their members get rich. Then they are happy. But they must have so much money in the organisation so that they will not be dependent too much on single projects or the government support or anything like that, so they are independent."

Svebio originated from Novator, because it is from there when in December 1979 invitation cards to join the new bioenergy club were sent to 300 companies and individuals in all segments. Svebio has today good connections also at the political level where it is accepted as a competent partner when issues about bioenergy are discussed. But of course it is also involved in other things, such as organising bioenergy conferences, where Novator is heavily involved in. As a matter of fact, in a certain period of time Novator was responsible for organising conferences on Svebio's behalf. In the late 80s when the oil prices dropped, renewable sources of energy were not on the agenda anymore and that meant also difficult times for Svebio. So Novator and Mr. Ljungblom took the risk of organising the conferences for Svebio and they divided the profit from these activities. They started with new series of conferences (World Bioenergy Conference is one result of that). It worked well and Svebio started to grow again, becoming able to take over the conferences again.[124]

Actually such kind of agreement as mentioned above is the kind of agreement they started with at the time when Svebio was founded and needed help from outside to survive. The agreement was that Novator did the initial job for Svebio and if Svebio got money, Novator would be paid for this work, otherwise not. And it was Mr. Ljungblom's responsibility to see that the association got money so he arranged conferences, applied for grants etc.

Svebio and Novator are still very connected. They share the same floor in a building in central Stockholm and they have an agreement to share some services.

So knowing the main differences between the three organisations in figure 6-1 we can now present them in figure 6-2 below using two parameters: creating profit and actively promoting the growth of the whole Swedish bioenergy sector.

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[123] Aldrich, H. E., and M. Fiol. (1994). Fools rush in? The institutional context of industry creation, p. 660.

[124] These conferences turned out to be very important for TallOil, because Mr. Lundberg and Mr. Forsberg met exactly at one conference for the first time. TallOil was also the main sponsor of the World Bioenergy Conference 2006.

The figure tells us the following:

- TallOil is primarily a commercial organisation
- Svebio is a strictly non-commercial, non-profit biomass association
- Novator is a commercial organisation, but not as much as TallOil and is more similar to Svebio, because they connect different bioenergy actors for the sake of the branch as a whole, but there is also a goal to make some profit. Novator is somewhere between TallOil and Svebio.

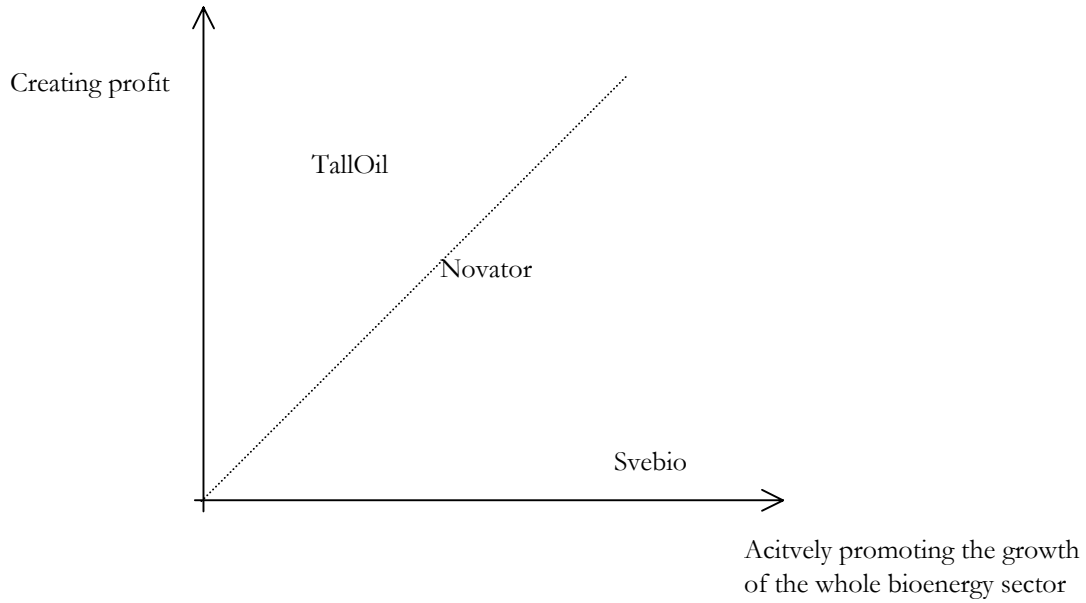

Figure 6-2 Positioning of the three organisations relative to their commercial drive and promotion of the bioenergy sector

However, at this point we need to stress that the figure above presents the relative differences only between the three companies. Creating profit, as explained in chapter 4.4.2 is not exclusively the main drive for TallOil and Mr. Lundberg.

Let us now look at the importance of Novator and Svebio for TallOil.

Bångens and Araujo[125] stress, that companies cannot develop capabilities in isolation. The same goes for TallOil. With the creation of consultancy company Novator contacts were made with the business world, skills and capabilities of three bioenergy enthusiasts where joined in one company. The three enthusiasts were Mr. Henrik Lundberg, Mr. Lennart Ljungblom, who still runs the company today, and Ms. Ursula Buddenbaum (today Mrs. Krische).

To see how Svebio affected TallOil we shall first have a look at the statement Mr. Lundberg made: "I can say that the relationship between Svebio and TallOil, Svebio and myself is very positive, and I've had great help from Svebio in the early days when for example TPS was

[125] Bångens, L., and Araujo L. (2002). The structures and processes of learning. A case study. *Journal of Business Research* 55: p. 573.

formed in 1992. We had great help from Svebio in creating contacts with the district heating companies, the energy industry and so on. [...] And I owe, and the co-workers and employees of TPS owe Svebio a lot of gratitude for their assistance in helping us survive as a company. And it is also important to think, I mean you have to realise that you cannot drive your own commercial ambitions through an organisation like Svebio. You have to make a division of what is important for the trade or for bioenergy as such and what is important for yourself. And if you use Svebio as a vehicle for your own ambitions, then I think it will be looked through, people will see that very quickly and you will lose credibility. And this is something that we have to think about when we are operating, when Svebio is developing, and so that you get the right people in the board of Svebio for example. I have never been on the board of Svebio. Never, never."

It is visible that Mr. Lundberg gives a lot of credit to Svebio for the success of his company. He is also very careful in making connections with Svebio and therefore does not want to be in the board. However, there are some personal connections of this kind in at least three ways:

- Mr. Lundberg is in the election committee of Svebio and takes part in the decision process, who is going to be in the board.

- Mr. Tomas Kåberger is the managing director of TPS and a member of TallOil's management board, but also the chairman of Svebio.

- Mr. Bo Hektor works for TallOil and is also the member accountant in Svebio.[126]

Of course it cannot be said that TallOil takes advantage of these connections in Svebio, but it shows what an important company they are and how deeply they are rooted in the Swedish bioenergy sector. Without a doubt TallOil is a noticeable player in it.

Additionally Mr. Ljungblom also says that the initial experience with having official persons and not business people as chairmen in Svebio turned out to be a bad idea, because they could be too closed. Actually it is pretty normal to have business people in industry associations, but they have to work on behalf of the whole branch and not for the purpose of their own company only. According to Mr. Ljungblom Mr. Kåberger is a very suitable person from this point of view.

In the questionnaire handed to the employees there was also a question concerning their perception of bioenergy networks and their importance for TallOil (results are presented in appendix I, chapter AI.2.1). Basically the employees understand bioenergy networks as a network of actors in the bioenergy supply chain (i.e. very much from the intraindustrial point of view). These actors support each other, share the knowledge and work on the development of the bioenergy sector. Some also include political actors in these network and some see them as a tool to influence the political decision makers.

The majority of those employees who replied to the question which part of bioenergy networks they find most important for TallOil (8 employees replied) think it is their partners in business to business relationships (including customers).

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[126] In this respect it is also interesting to know that Mr. Bo Hektor represents TallOil in the International Energy Agency (IEA) or better to say in its bioenergy programme – task 40 (Sustainable International Bioenergy Trade: Securing Supply and Demand). According to Mr. Hektor this does not create any negative reactions from their competitors' side because they themselves are taking part in other bodies and TallOil does not protest in such cases either (Bo Hektor, 26/6/2006, personal interview).

Also the answers to the questions about reliance of TallOil on other actors confirm their views above. Generally they find TallOil highly reliant upon established business or market relationships. They also think it is important for TallOil to build new relationships and political networks. However they do not seem to have a strong opinion about their reliance upon relationships with the public (they mostly have a neutral standpoint). This is probably because TallOil works in the business to business sector and less with individual consumers.

To conclude this section we can cite Mr. Ljungblom again, saying: "You could say we are three examples of the same basic idea. Svebio, TallOil and Novator. [...] We share same ideologic visions."[127]

[127] Lennart Ljungblom (27/6/2006), personal interview.

7 Conclusions and Reflections

Throughout his career life Mr. Lundberg has been engaged in bioenergy. At the end of the 1970s he founded a bioenergy company early in his stage of life (Novator), quickly followed by the bioenergy association Svebio and in the beginning of the 1980s a pellet factory was already his next project. He engaged in many other activities until he founded TallOil in 1993. None of these projects was easy and he had to deal with issues of legitimacy for bioenergy and his venture the whole time. As he said:"I have never experienced anything as a smooth ride ever in my life."[128]

Although TallOil exists in a country where bioenergy might have a strong tradition and more support than in several other countries, it is still an environment, where the bioenergy industry is at most juvenile. The reflections upon TallOil's existence in this environment are presented in the following section.

7.1 Reflections on TallOil

Even though a new industry has to fight for its legitimacy, there can be positive factors supporting it

A new venture should try to identify the positive factors, because legitimacy could to some extent already exist at some levels. There can be some institutions, politicians, industries or individuals supporting it. Mr. Lundberg did enjoy some sort of support by the government, some other companies and entrepreneurs at the beginning. Some of this support was quickly united in Svebio. Another important example is the support by the Association of Swedish Farmers. TallOil's success is in some way linked to an established institution of small scale forestry in the agricultural sector. Having another industry on board is extremely useful for a new industry.

A new venture does not necessarily deal with legitimacy in a hierarchical manner

If we look at the four levels of legitimacy, i.e. organisational, intraindustrial, interindustrial and instituitional (also presented in figure 3-1) and on the other hand how TallOil met the challenges presented by each of these levels, there is no progressive and sequential advance up this hierarchy. In a dynamic environment legitimacy has to be obtained in parallel at several levels. Or sometimes a level can be jumped over and the next level is dealt with, but then the previous level is dealt with again. It can for example be useful to try to fight for legitimacy at the institutional level, because this could help to decrease the resistance at the interindustrial level.

Positive and negative factors are volatile

Positive factors are not always positive and negative are not always negative. For example, the lack of competences at the intraindustrial level can be regarded as a negative occurrence, but TallOil can by offering high-quality services make it advantagous for its own development. Or another example is with actors who can move from one level of analysis to another, having a positive or a negative impact on the new industry. Like when established industries enter the new industry themselves and give it legitimacy. Then they can become important players in it

[128] Henrik Lundberg (16/8/2006), personal interview.

and even buy up the companies of the founding pioneers. This means that it can be very useful for a new venture to identify such volatile factors, because today's opponent can become tomorrow's partner.

Not only obtaining legitimacy but retaining the existing one

In the process of trying to gain greater legitimacy it should not be forgotten that it is also important to retain the existing legitimacy. The fall in oil prices in the 1980s and the following crisis in the bioenergy sector is a clear example of how easily the gained legitimacy can be lost. When the oil prices fell it became practically impossible for those politicians who were in favour of it to continue to support it.

Try to exploit niche business opportunities

One factor that was very favourable for the development of TallOil was the fact that the new venture was a niche, and that it was not considered much of a threat for established industries. Thus if possible, the new entrepreneurs should try to find such a niche or at least try to keep a low profile for a while to establish their business.

A company is not to be alone in the fight for legitimacy

The case of TallOil shows that having an association for companies in a new industry can be a very successful approach when fighting for legitimacy and sometimes basically the only possible one. Furthermore activities of one company can support many other companies. For example Novator is very active in the media world whereas TallOil is not that much.

7.2 Direction of TallOil

TallOil will certainly continue to develop trading activities. However, recent developments show that production activities are being developed strongly and this plays a substantial role in Mr. Lundberg's vision for the future (i.e. production of biofuels).

TallOil also will continue to develop internationally and further growth is expected. It is of course a very challenging task and far from a 'smooth ride'. Mr. Lundberg says:"[…] I think that our main problem will be to prove to the world around that we have sound ideas, that we have reasonable integrated thinking, that we have the possibility to attract the best people and good capital so that we are actually capable of carrying out these ideas in the practical world and that it is not only a confused idea or vague idea in which direction to go."[129]

With the present growth the company will also need more capital which will have to be raised outside of the company. Generally, access to capital is not expected to be extremely difficult, but it is the lack of experience in external funding and fulfilment of the requirements of the capital market that pose a challenge. Mr. Lundberg continues:"[…] being an underdog as I am and have been with an entrepreneurial way of doing things, without having the experience of a finance […] it's easy to make mistakes and underestimating the requirements of the capital market in how to present your ideas and how to make your company look like a professional organisation."[130]

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[129] Henrik Lundberg (16/8/2006), personal interview.

[130] Henrik Lundberg (16/8/2006), personal interview.

On top of these problems there will also be organisational issues. With a larger structure there are different requirements on how to run a company. Mr. Lundberg is expecting not to manage the company in five years and leave this to somebody else. He will in turn be focused on business development and marketing, because this is where he wants to be.

With the bioenergy industry gaining more legitimacy, big organisations are expected to enter it. It will become less risky for them to do so and because they have the resources they could take over small organisations. This is also a threat for TallOil. "I can well see us being swallowed by one of these large organisations, because it just takes a decision. I mean if for example I as the main owner of the company am being offered, there is always a sum that I cannot refuse," says Mr. Lundberg.[131]

The actors that could affect the legitimacy of bioenergy and hence influence TallOil are according to Mr. Lundberg environmental researchers, who would point out the effects of bioenergy use on the environment (such as monocultures, particulate emission, fungi and spores in the handling of biomass etc.). There is a risk that such researchers would affect the political support for bioenergy. However he concludes: "But even if we were not to benefit totally from this it might still be the choice of the politicians and the general public of course to choose bioenergy because it's a lesser evil."[132]

Under such circumstances the role of Svebio will be enhanced. It will work towards the government and legislative area. Even more, with the possibilities to work internationally it could become an international spokesman for bioenergy. As such it could indirectly also offer support to TallOil in its international activities. However, Mr. Lundberg thinks that Svebio still needs to define clearer its international role, because there are members with international ambitions and those that prefer to work locally or regionally. As seen so far Svebio is becoming engaged in propagation of bioenergy at the international level. The future will show to what extent this development will continue.

7.3 Further Research

The need for future research can be identified from two perspectives:

1) The need to conduct further research like this on other bioenergy companies.

2) The need to build-up existing research on TallOil.

TallOil is only one company in this growing variety of bioenergy companies. Having more case studies would give a better picture of the state of the bioenergy sector in Sweden and in other countries. Comparing these cases would then also result in differences and similarities between these companies either in Sweden or throughout Europe. This would be an important tool for promoting bioenergy and understanding how to support it.

The existing research on TallOil can be expanded both internally and externally. Internally, issues on the company's culture and strategic orientation (which are in this thesis part of the appendixes) could be explored additionally, giving more solid background for explanation of TallOil's positive development. The answers to the questionnaires indicate that there are possibilities for further research in these two areas.

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[131] Henrik Lundberg (16/8/2006), personal interview.

[132] Henrik Lundberg (16/8/2006), personal interview.

Furthermore, since this research focused only on the picture from inside the company, it should be expanded also to view the company from the outside. For example, a fast growing and expanding company inevitably needs the support of banks and other creditors in order to realise the plans. How does a bank evaluate a bioenergy company seems to be a particularly important area of further research.

Since TallOil works in a complex network, mapping it is highly recommended together with identifiying the importance of TallOil in it. How does the (knowledge) network actually look like and who is the most important player in it? By researching the existing networks many actors outside would share their views on TallOil, again giving a picture from outside of the company. Chapter 6.3 has already tackled the issue of networks, but more needs to be done in this direction.

What could also be an interesting research area is the question of sustainability and how TallOil relates to it. With e.g. more pellets being produced, hence more natural resources being used up and with the world trade with pellets expanding, the effect on the environment is increasing. TallOil contributes to the world trade with biofuels as well (trading with biofuels is actually the core activity of the company). The question arises to what extent the activities of TallOil (and similar bioenergy companies) are sustainable and to what extent they are merely a 'lesser evil'. The results of such research would indeed be extremely useful.

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Abbreviations

NoE – Bioenergy Network of Excellence

PIR – Pelletsindustrins Riksförbund (The Swedish Association of Pellet Producers)

Svebio – The Swedish Bioenergy Association

Appendix I: TallOil's Corporate Culture

The corporate culture of TallOil was a subject of a survey within the company which was carried out from mid July to mid August. This survey was oriented at the employees but not at the leadership for which another separate questionnaire was prepared. 21 employees answered the questionnaire on the company's culture.

This appendix consists of two main chapters: the exact copy of the questionnaire and the presentation of the answers along with their analysis. For both the questionnaire design and the analysis, the approach by Deshpandé, Farley and Webster was used.[133]

AI.1 The Questionnaire on Company's Culture

QUESTIONNAIRE FOR TALLOIL EMPLOYEES

This questionnaire aims to provide insights into the perceptions that TallOil employees have of their company. Magnus Ånstrand has endorsed this study and would kindly appreciate if you would spend about 15 minutes on this questionnaire. Please save your answers and send back the completed questionnaire by e-mail to: roberthlep@talloil.se. The answers will be analysed together and not individually. Confidentiality is also subject to a non-disclosure agreement between TallOil and IIIEE (Internationella Miljöinstitutet) at Lund University.

1. For how long have you been working for TallOil or any of the subsidiary companies?

less than 1 year ☐ 1-2 years ☐ 2-3 years ☐ 3-4 years ☐ more than 4 years ☐

2. Who do you work for at present?

The mother company ☐

A subsidiary company ☐

Do you have further comments?

3. In what area of TallOil do you work (you may check more than one box)?

Business, administration ☐

Sales ☐

Marketing ☐

Technology ☐

Other (please write in the field):

Comments?

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[133] Deshpandé, R., J. U. Farley, and F. E. Webster Jr. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis. *Journal of Marketing* 57: p. 23 – 38.

ORGANISATIONAL CULTURE[134]

These questions relate to what TallOil is like. The questions are divided into six sections, each of the sections containing different statements describing TallOil.

Please answer the questions by checking one box for each statement, depending on how similar the description is to TallOil.

None of the descriptions is any better than any other; they are just different. Organisations are often a mixture of those described.

1. What kind of organisation is TallOil according to your opinion?

(A) TallOil is a very **personal** place. It is like an extended family. People seem to share a lot of themselves.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(B) TallOil is a very **dynamic and entrepreneurial** place. People are willing to stick their necks out and take risks.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(C) TallOil is a very **formalized and structural** place. Established procedures generally govern what people do.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(D) TallOil is very **production oriented.** A major concern is with getting the job done, without much personal involvement.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

Do you have any further comments?

Please continue on the next page

[134] The reader should be informed, that in questions 1 to 4 the statements A correspond to clan, B to adhocracy, C to hierarchy and D to market culture. The respondents were not told about this pattern.

2. How do you perceive the head of TallOil?

(A) The head of TallOil (Henrik Lundberg) is generally considered to be a **mentor** or a **father figure.**

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(B) The head of TallOil is generally considered to be an **entrepreneur**, an **innovator**, or a **risk taker.**

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(C) The head of TallOil is generally considered to be a **coordinator**, an **organizer**, or an **administrator**.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(D) The head of TallOil is generally considered to be a **producer**, a **technician**, or a **hard-driver**.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

Do you have any further comments?

3. What do you think holds TallOil together?

(A) The glue that holds TallOil together is **loyalty and tradition**. Commitment to this firm runs high.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(B) The glue that holds TallOil together is a **commitment to innovation and development.** There is an emphasis on being first

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(C) The glue that holds TallOil together is **formal rules and policies**. Maintaining a smooth-running institution is important here.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(D) The glue that holds TallOil together is the emphasis on **tasks and goal accomplishment**. A production orientation is commonly shared.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

Do you have any further comments?

Please continue on the next page

4. What do you perceive that TallOil finds important?

(A) TallOil emphasizes **human resources**. High cohesion and morale in the firm are important.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(B) TallOil emphasizes **growth and acquiring new resources**. Readiness to meet new challenges is important.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(C) TallOil emphasizes **permanence and stability**. Efficient, smooth operations are important.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(D) TallOil emphasizes **competitive actions and achievement**. Measurable goals are important.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

Do you have any further comments?

5. How are new activities undertaken at TallOil?

(A) TallOil's leadership **shares the plans** for new activities with the employees.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(B) When justifying the new activities it takes **a lot of effort** for the leadership to gain the support of the employees.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(C) When plans for new activities are presented, the **importance of participation** of all employees is stressed.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(D) The plans for new activities are presented by the leadership in a consistent way, so that the employees hear the **same story**.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

Do you have any further comments?

Please continue on the next page

6. How do you perceive the importance of "bioenergy networks" for TallOil?

(A) TallOil is highly reliant upon **established business or market relationships**.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(B) For TallOil it is important to **build new relationships**.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(C) For TallOil it is important to **build political networks**.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

(D) TallOil is highly reliant upon **relationships with the public**.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
☐	☐	☐	☐	☐

How do you personally understand or perceive the term "bioenergy network"?

Which types of relationships do you personally consider to be most important for Talloil?

Do you have any further comments?

Thank you for your co-operation. Please save the file and send it to roberthlep@talloil.se.

Your answers are confidential and will be analysed only together with other answers and not individually.

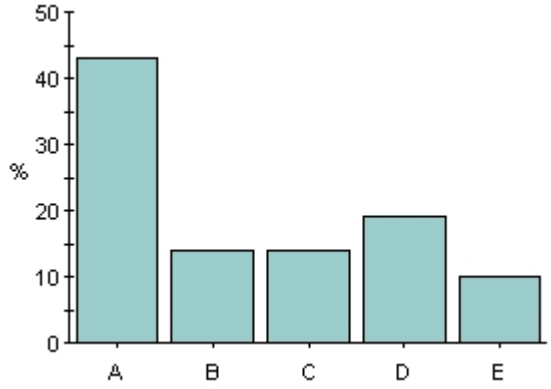
AI.2 The Collected Answers

This chapter is divided into two sections. In the first one the answers are presented in the format in which the software tool e-Val generates a report. In the next section these answers are analysed.

AI.2.1 The computer report on the survey

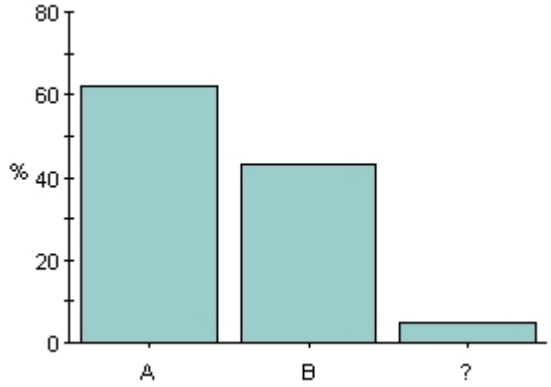
Summary	
Total number of answers	21

1. For how long have you been working for TallOil or any of the subsidiary companies?



	%	#
A) less than 1 year	42.9%	9
B) 1-2 years	14.3%	3
C) 2-3 years	14.3%	3
D) 3-4 years	19%	4
E) more than 4 years	9.52%	2
Total	100%	21

2. Who do you work for at present?



	%	#
A) The mother company	61.9%	13
B) A subsidiary company	42.9%	9
C) ?	4.76%	1
Total	109.5%	23

Do you have further comments?

3 have commented on this question

The mother company (2 comments)

— I work for all companies but I am employed in one company.

— Work for the whole TallOil group

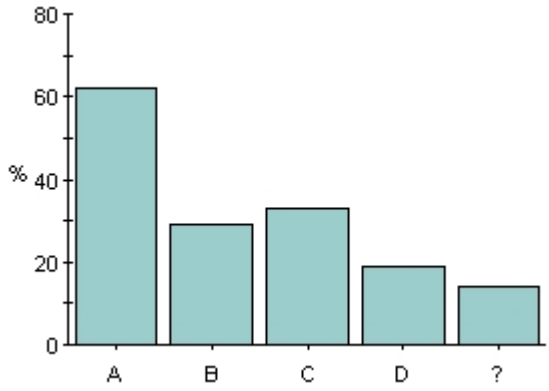
A subsidiary company (one comment)

— (The mother company) I work for all companies but I am employed in one company.

No alternative given (one comment)

— None of the above

3. In what area of TallOil do you work (you may check more than one box)?



	%	#
A) Business, administration	61.9%	13
B) Sales	28.6%	6
C) Marketing	33.3%	7
D) Technology	19%	4
E) ?	14.3%	3
Total	157.1%	33

Other (please write in the field):

4 have commented on this question
Business, administration (one comment)
— Maintenance
Sales (one comment)
— (Business, administration) Maintenance
Marketing (one comment)
— (Business, administration) Maintenance
Technology (one comment)
— (Business, administration) Maintenance
No alternative given (3 comments)
— Trainee, technology, sales…
— Human resources (personal)
— IT

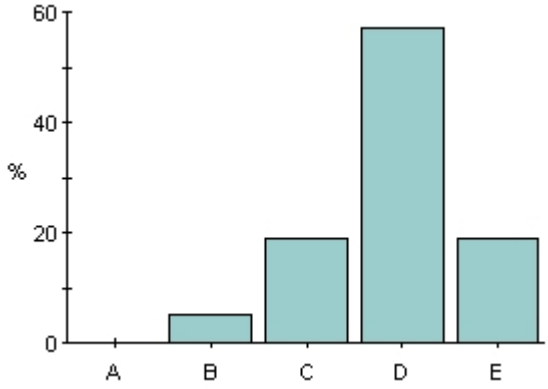
Comments?

Nobody has answered this question

ORGANISATIONAL CULTURE

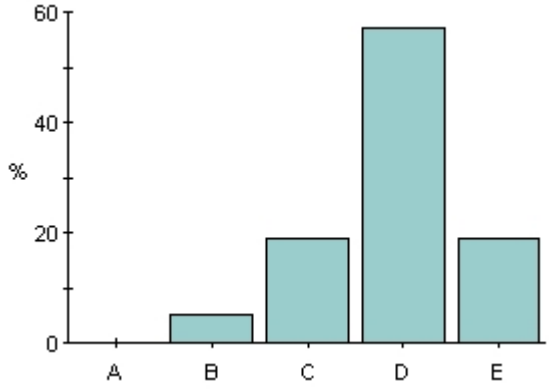
1. What kind of organisation is TallOil according to your opinion?

(A) TallOil is a very personal place. It is like an extended family. People seem to share a lot of themselves.



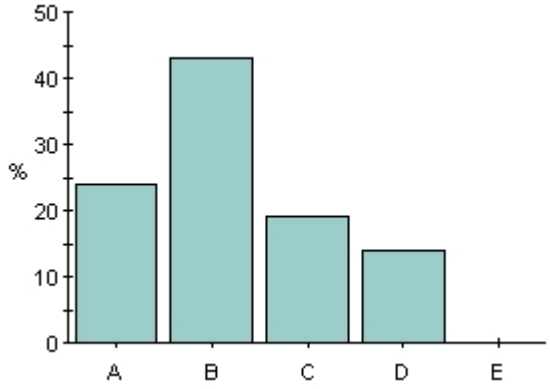
	%	#
A) Strongly disagree	0%	0
B) Disagree	4.76%	1
C) Neutral	19%	4
D) Agree	57.1%	12
E) Strongly agree	19%	4
Total	100%	21

(B) TallOil is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.



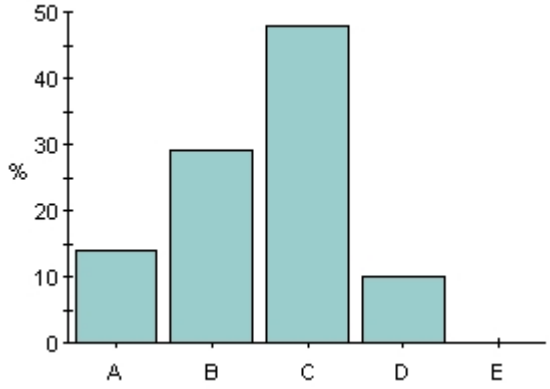
	%	#
A) Strongly disagree	0%	0
B) Disagree	4.76%	1
C) Neutral	19%	4
D) Agree	57.1%	12
E) Strongly agree	19%	4
Total	100%	21

(C) TallOil is a very formalized and structural place. Established procedures generally govern what people do.



	%	#
A) Strongly disagree	23.8%	5
B) Disagree	42.9%	9
C) Neutral	19%	4
D) Agree	14.3%	3
E) Strongly agree	0%	0
Total	100%	21

(D) TallOil is very production oriented. A major concern is with getting the job done, without much personal involvement.



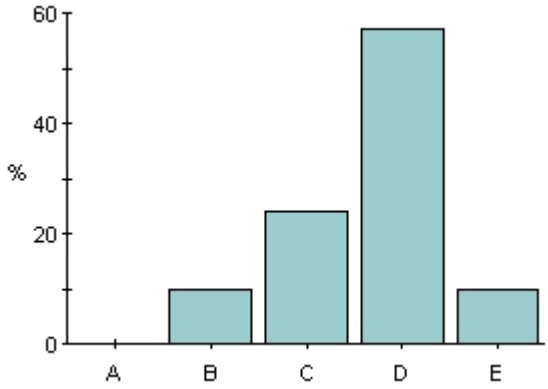
	%	#
A) Strongly disagree	14.3%	3
B) Disagree	28.6%	6
C) Neutral	47.6%	10
D) Agree	9.52%	2
E) Strongly agree	0%	0
Total	100%	21

Do you have any further comments?

One has answered this question
— Dynamic organisation

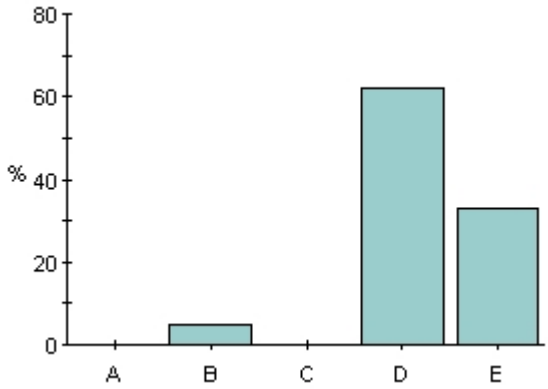
2. How do you perceive the head of TallOil?

(A) The head of TallOil (Henrik Lundberg) is generally considered to be a mentor or a father figure.



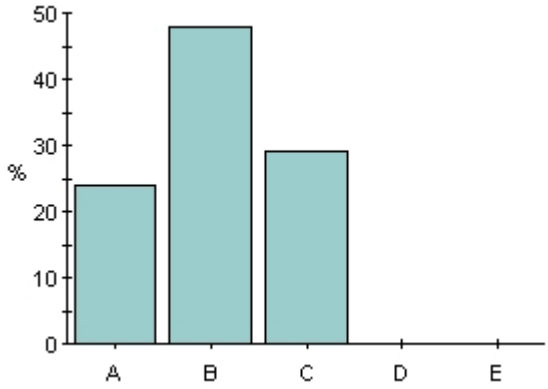
	%	#
A) Strongly disagree	0%	0
B) Disagree	9.52%	2
C) Neutral	23.8%	5
D) Agree	57.1%	12
E) Strongly agree	9.52%	2
Total	100%	21

(B) The head of TallOil is generally considered to be an entrepreneur, an innovator, or a risk taker.



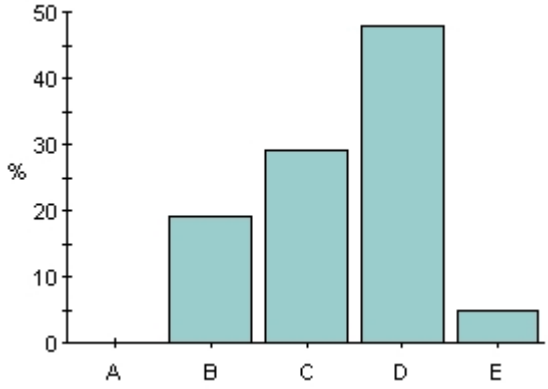
	%	#
A) Strongly disagree	0%	0
B) Disagree	4.76%	1
C) Neutral	0%	0
D) Agree	61.9%	13
E) Strongly agree	33.3%	7
Total	100%	21

(C) The head of TallOil is generally considered to be a coordinator, an organizer, or an administrator.



	%	#
A) Strongly disagree	23.8%	5
B) Disagree	47.6%	10
C) Neutral	28.6%	6
D) Agree	0%	0
E) Strongly agree	0%	0
Total	100%	21

(D) The head of TallOil is generally considered to be a producer, a technician, or a hard-driver.



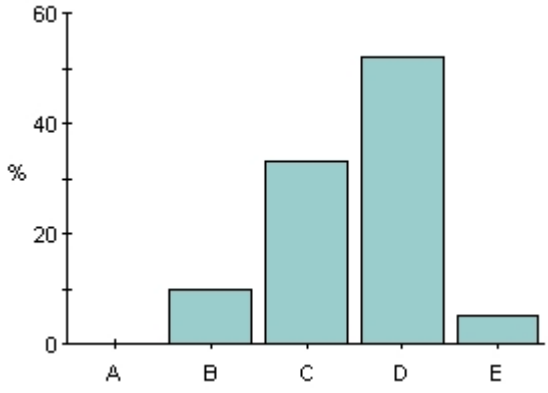
	%	#
A) Strongly disagree	0%	0
B) Disagree	19%	4
C) Neutral	28.6%	6
D) Agree	47.6%	10
E) Strongly agree	4.76%	1
Total	100%	21

Do you have any further comments?

Nobody has answered this question

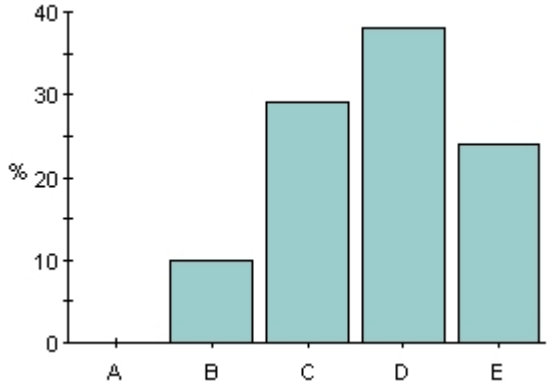
3. What do you think holds TallOil together?

(A) The glue that holds TallOil together is loyalty and tradition. Commitment to this firm runs high.



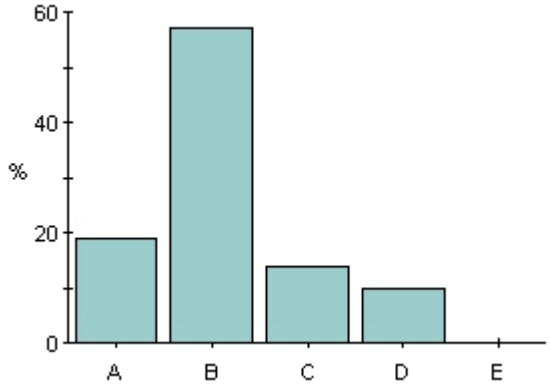
	%	#
A) Strongly disagree	0%	0
B) Disagree	9.52%	2
C) Neutral	33.3%	7
D) Agree	52.4%	11
E) Strongly agree	4.76%	1
Total	100%	21

(B) The glue that holds TallOil together is a commitment to innovation and development. There is an emphasis on being first.



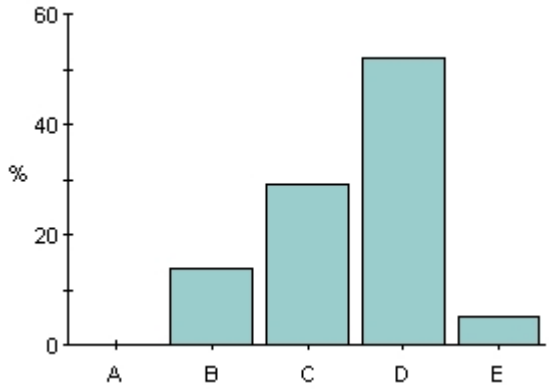
	%	#
A) Strongly disagree	0%	0
B) Disagree	9.52%	2
C) Neutral	28.6%	6
D) Agree	38.1%	8
E) Strongly agree	23.8%	5
Total	100%	21

(C) The glue that holds TallOil together is formal rules and policies. Maintaining a smooth-running institution is important here.



	%	#
A) Strongly disagree	19%	4
B) Disagree	57.1%	12
C) Neutral	14.3%	3
D) Agree	9.52%	2
E) Strongly agree	0%	0
Total	100%	21

(D) The glue that holds TallOil together is the emphasis on tasks and goal accomplishment. A production orientation is commonly shared.



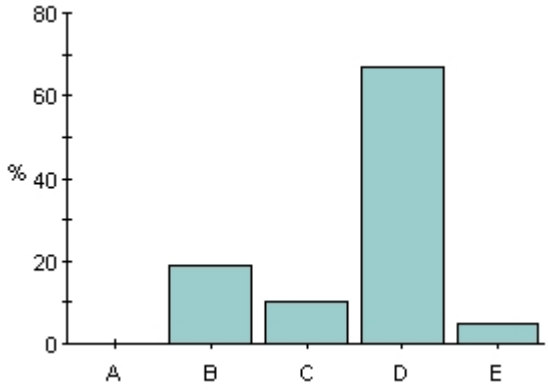
	%	#
A) Strongly disagree	0%	0
B) Disagree	14.3%	3
C) Neutral	28.6%	6
D) Agree	52.4%	11
E) Strongly agree	4.76%	1
Total	100%	21

Do you have any further comments?

Nobody has answered this question

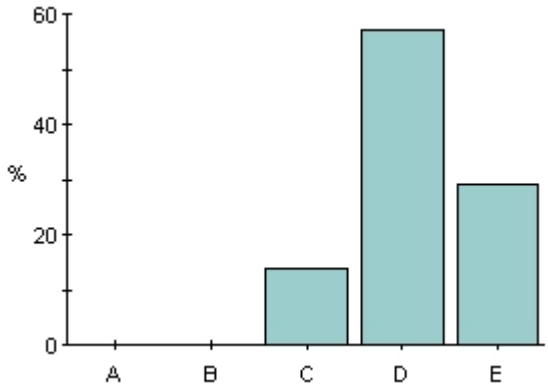
4. What do you perceive that TallOil finds important?

(A) TallOil emphasizes human resources. High cohesion and morale in the firm are important.



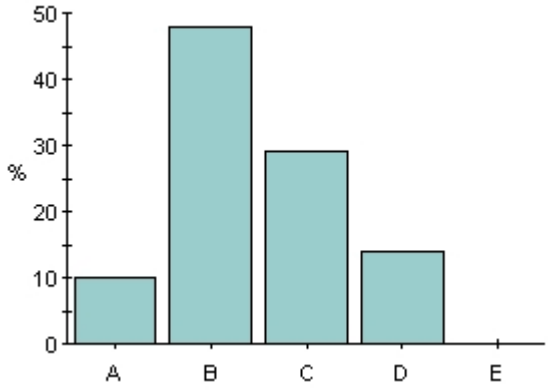
	%	#
A) Strongly disagree	0%	0
B) Disagree	19%	4
C) Neutral	9.52%	2
D) Agree	66.7%	14
E) Strongly agree	4.76%	1
Total	100%	21

(B) TallOil emphasizes growth and acquiring new resources. Readiness to meet new challenges is important.



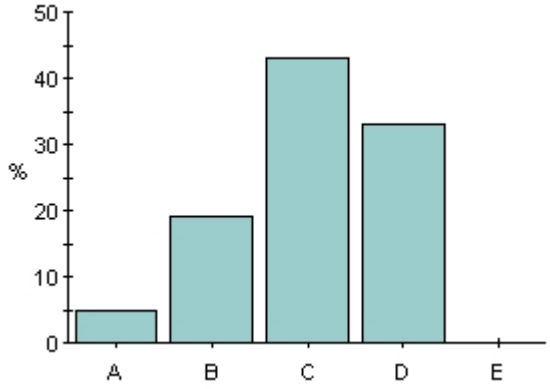
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	14.3%	3
D) Agree	57.1%	12
E) Strongly agree	28.6%	6
Total	100%	21

(C) TallOil emphasizes permanence and stability. Efficient, smooth operations are important.



	%	#
A) Strongly disagree	9.52%	2
B) Disagree	47.6%	10
C) Neutral	28.6%	6
D) Agree	14.3%	3
E) Strongly agree	0%	0
Total	100%	21

(D) TallOil emphasizes competitive actions and achievement. Measurable goals are important.



	%	#
A) Strongly disagree	4.76%	1
B) Disagree	19%	4
C) Neutral	42.9%	9
D) Agree	33.3%	7
E) Strongly agree	0%	0
Total	100%	21

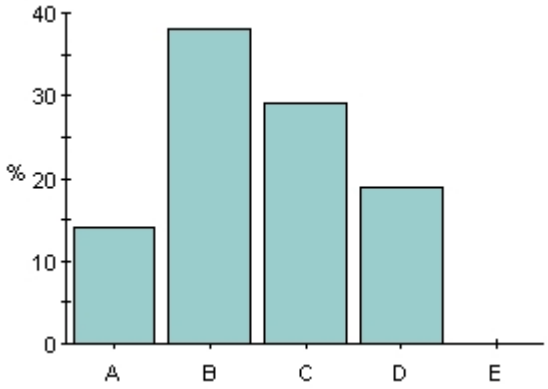
Do you have any further comments?

Nobody has answered this question

UNDERTAKING OF NEW ACTIVITIES

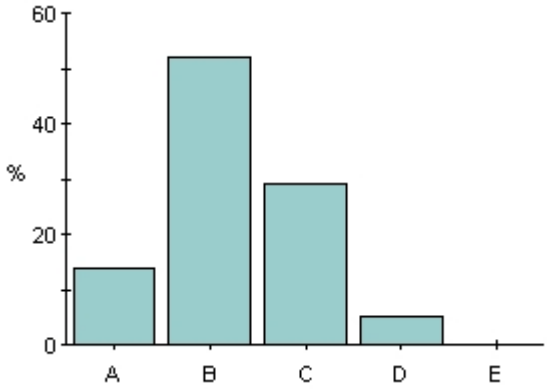
5. How are new activities undertaken at TallOil?

(A) TallOil's leadership shares the plans for new activities with the employees.



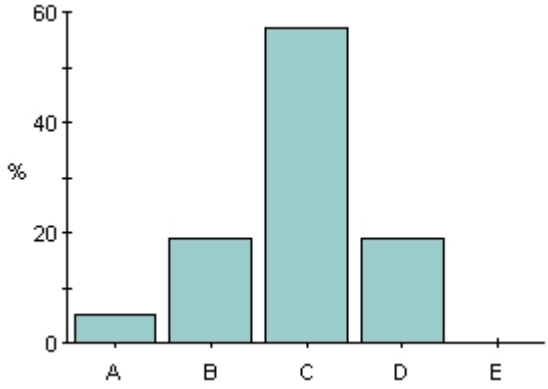
	%	#
A) Strongly disagree	14.3%	3
B) Disagree	38.1%	8
C) Neutral	28.6%	6
D) Agree	19%	4
E) Strongly agree	0%	0
Total	100%	21

(B) When justifying the new activities it takes a lot of effort for the leadership to gain the support of the employees.



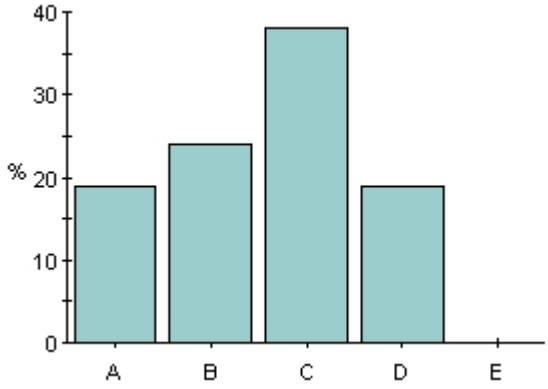
	%	#
A) Strongly disagree	14.3%	3
B) Disagree	52.4%	11
C) Neutral	28.6%	6
D) Agree	4.76%	1
E) Strongly agree	0%	0
Total	100%	21

(C) When plans for new activities are presented, the importance of participation of all employees is stressed.



	%	#
A) Strongly disagree	4.76%	1
B) Disagree	19%	4
C) Neutral	57.1%	12
D) Agree	19%	4
E) Strongly agree	0%	0
Total	100%	21

(D) The plans for new activities are presented by the leadership in a consistent way, so that the employees hear the same story.



	%	#
A) Strongly disagree	19%	4
B) Disagree	23.8%	5
C) Neutral	38.1%	8
D) Agree	19%	4
E) Strongly agree	0%	0
Total	100%	21

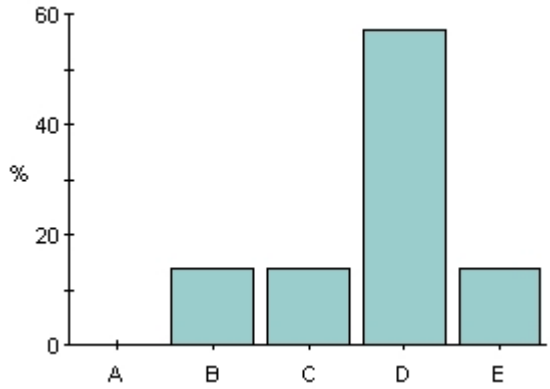
Do you have any further comments?

Nobody has answered this question

BIOENERGY NETWORKS

6. How do you perceive the importance of "bioenergy networks" for TallOil?

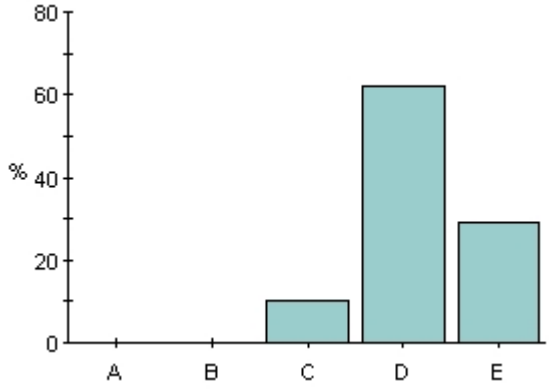
(A) TallOil is highly reliant upon established business or market relationships.



	%	#
A) Strongly disagree	0%	0
B) Disagree	14.3%	3
C) Neutral	14.3%	3
D) Agree	57.1%	12
E) Strongly agree	14.3%	3

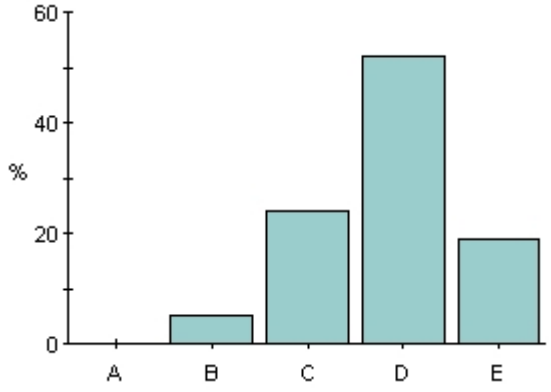
Total	100%	21

(B) For TallOil it is important to build new relationships.



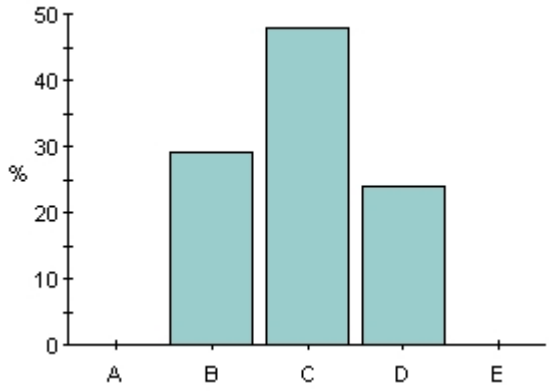
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	9.52%	2
D) Agree	61.9%	13
E) Strongly agree	28.6%	6
Total	100%	21

(C) For TallOil it is important to build political networks.



	%	#
A) Strongly disagree	0%	0
B) Disagree	4.76%	1
C) Neutral	23.8%	5
D) Agree	52.4%	11
E) Strongly agree	19%	4
Total	100%	21

(D) TallOil is highly reliant upon relationships with the public.



	%	#
A) Strongly disagree	0%	0
B) Disagree	28.6%	6
C) Neutral	47.6%	10
D) Agree	23.8%	5
E) Strongly agree	0%	0
Total	100%	21

How do you personally understand or perceive the term “bioenergy network”?

8 have answered this question
— A group of people working in the same or in different parts of the bioenergy value chain/network supporting each other for mutual gains.

— network of people/companys working with bioenergy resources/products and people who have influence in major decisions
— A network for development and business.
— A bioenergy network consist of people or organisations in the sector that can be used for sharing and learning knowledge, creating new business opportunities and keep tracks on threats and competitors. Also to take part of and influence over new or existing rules and regulations.
— A network of persons such as customers, suppliers and government agencies that share their knowledge on bioenergy topics.
— I don't.
— A network between actors in the bioenergy system
— Business – Educational institutions – Political institutions in cooperation

Which types of relationships do you personally consider to be most important for TallOil?

8 have answered this question
— Business to business
— The relationships with our customers are most important.
— Business to business
— Relations with established companies that has fuel sources they don't know how to handle and being the link to the energy market.
— Corporate managers, media, politicians
— technical and business
— Relationships with other bioenergy companys for possible colaboration
— Buyers of fuel and political

Do you have any further comments?

One has answered this question
— TallOils strongest potential is to act on the market from the "forest" to the "grid". Being in control of the whole chain.

AI.2.2 The analysis of the answers

In this section answers to questions from 1 to 4 are going to be analysed, because answers to questions 5 and 6 were discussed earlier in this work (chapter 5.1.1 – box 5-1 and chapter 6.3 respectively). The theoretical framework used for the analysis is taken from Deshpandé et al and so are the descriptions of cultures in the following paragraphs.[135] According to this framework, there are four types of cultural archetypes in a company:

- Clan culture
- Market culture
- Hierarchy
- Adhocracy

[135] Deshpandé et al. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis.

Clan culture stresses cohesiveness, participation and teamwork. Organisational cohesiveness and personal satisfaction are more important than financial and market share goals. As opposite to this culture there is the market culture, where competitiveness and goal achievement are emphasised. The focus is on productivity and responsiveness to the events on the market.

In the hierarchy culture order, rules and regulations are most important. There is tracking, surveillance and control, achivement of clearly stated goals defines business effectiveness. Hierarchy is in direct contrast with adhocracy where entrepreneurship, creativity and adaptability are in the centre. Flexibility and tolerance are highly valued and business effectiviness is understood in the terms of finding new markets and new directions for growth.

These four cultures can be presented in a diagram with two axis. One axis describes the processes in an organisation from organic to mechanistic, meaning that there is an emphasis on flexibility, spontanieity etc. or on control, order and stability. The other axis describes the emphasis on internal maintenance (smoothing activities, integration) as oposed to external positioning (competition, differentiation). As a result the figure below can be drawn.

ORGANIC PROCESSES

TYPE: **Clan**
DOMINANT ATTRIBUTES:
Cohesiveness, participation, teamwork, sense of family
LEADER STYLE:
Mentor, facilitator, parent-figure
BONDING:
Loyalty, tradition, interpersonal cohesion
STRATEGIC EMPHASES:
Toward developing human resources, commitment, morale

TYPE: **Adhocracy**
DOMINANT ATTRIBUTES:
Entrepreneurship, creativity, adaptability
LEADER STYLE:
Entrepreneur, innovator, risk taker
BONDING:
Entrepreneurship, flexibility, risk
STRATEGIC EMPHASES:
Toward innovation, growth, new resources

INTERNAL MAINTENANCE

EXTERNAL POSITIONING (competition, differentiation)

TYPE: **Hierarchy**
DOMINANT ATTRIBUTES:
Order, rules and regulation, uniformity
LEADER STYLE:
Co-ordinator, administrator
BONDING:
Rules, policies and procedures
STRATEGIC EMPHASES:
Toward stability, predictability, smooth operations

TYPE: **Market**
DOMINANT ATTRIBUTES:
Competitiveness, goal achievement
LEADER STYLE:
Decisive, achievement-oriented
BONDING:
Goal orientation, production, competition
STRATEGIC EMPHASES:
Toward competitive advantage and market superiority

MECHANISTIC PROCESSES

Figure AI-01 A model of organisational culture types[136]

In their work[137] the authors could not reject the hypothesis that business performance is ranked from highest to lowest according to type of organisational culture as follows:

1. Market culture (best)
2. Adhocracy culture
3. Clan culture
4. Hierarchical culture (worst)

In order to analyse the collected answers the following method will be used: all the answers will be given a value according to the level of disagreement or agreement, ranging from -2 to 2 (i.e. strongly disagree = -2, disagree = -1, neutral = 0, agree = 1, strongly agree = 2). These values will be multiplied with the number of respondents allocated to each of these values. Finally, in order to get an average value for each culture, the sum for all statements will be divided by four.

For example the sum for statement 1A (TallOil is a very personal place. It is like an extended family. People seem to share a lof to themselves) is calculated in the table below.

Table AI0-1 Evaluation of the statement 1A of the company culture questionnaire

	Value (A)	No. of votes (B)	AxB
Strongly disagree	-2	0	0
Disagree	-1	1	-1
Neutral	0	4	0
Agree	1	12	12
Strongly agree	2	4	8
			Σ=19

The same procedure was done for statements 2A (Σ=14), 3A (Σ=11) and 4A (Σ=10). The sum for all these four statements together was divided by 4 and the final result 13.5 was obtained for clan culture. The same was done for the other cultures as well and the result is presented in figure AI-2.

The following preliminary conclusions can be made:

- It cannot be said that TallOil has a hierarchy culture.

[136] Deshpandé et al. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis, p. 25.

[137] Deshpandé et al. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis.

- It can be assumed that TallOil has a mixture of cultures, where adhocracy is the dominant one followed by clan culture and with relatively strong notion of market culture.

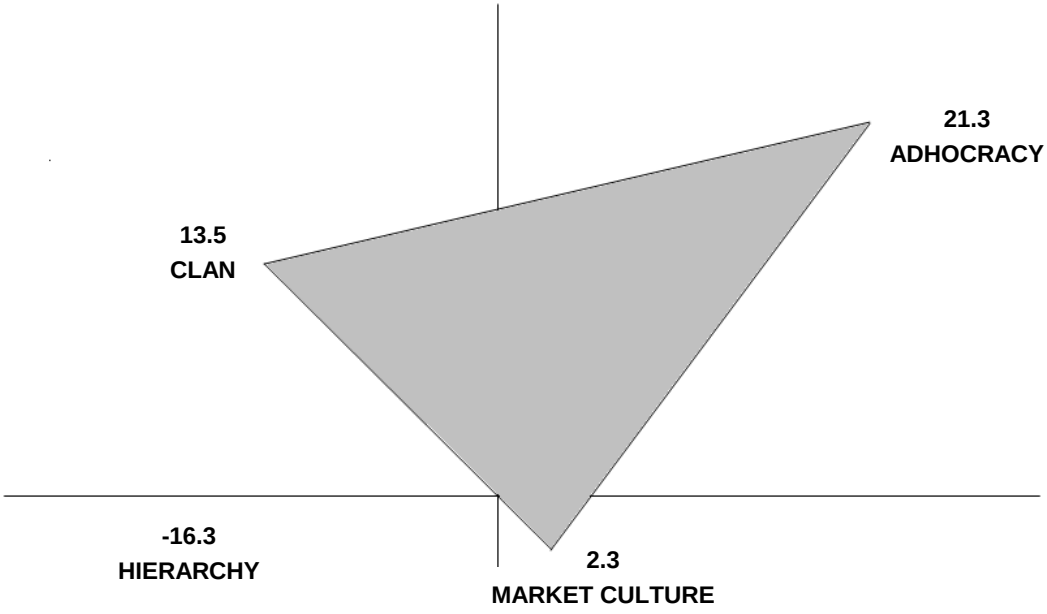


Figure AI-2 TallOil's mixture of company cultures

If we look at the ranking of the cultures relative to the business performance (the hypothesis of Deshpandé et al) some part of TallOil's success probably could be explained with its adhocracy culture. Adhocracy is favourable for business success, whereas hierarchy, being detrimental to it, is the weakest of type of culture in TallOil. Both adhocracy and market culture count as flexibile and successful cultures from the business performance point of view and it is not necessary that market culture is always the better of the two.

Appendix II: TallOil's Strategic Orientation

The strategic orientation of TallOil was also a subject of the survey within the company which was carried out from mid July to mid August. However this survey was oriented at the leadership. All five respondents sent their answers (all four members of the board plus Mr. Borg, the assistant of Mr. Lundberg).

This appendix consists of two main chapters: the exact copy of the questionnaire and the presentation of the answers along with their analysis. For both the questionnaire design and the analysis, the approach by Morgan and Strong was used.[138]

AII.1 The Questionnaire on Company's Strategic Orientation

TALLOIL LEADERSHIP QUESTIONNAIRE: PERCEPTIONS OF STRATEGIC ORIENTATION

The aim of this questionnaire is to gain insights into the perceptions of TallOil leadership. Magnus Ánstrand has endorsed this study and we would very much appreciate if you would spend about 15 minutes on this questionnaire. Please save your answers and send back the completed questionnaire by e-mail to: roberthlep@talloil.se. The answers will be analysed together and not individually. Confidentiality is also subject to a non-disclosure agreement between TallOil and IIIEE (Internationella Miljöinstitutet) at Lund University.

STRATEGIC ORIENTATION

In this part we are interested in the principles and approaches that guide you through your decision-making process and business practice. Please cross a box for each statement. 1 means you strongly disagree with the statement and 5 means you strongly agree with it.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Proactiveness					
a) We are constantly seeking new opportunities related to present operations	1☐	2☐	3☐	4☐	5☐
b) We are usually the first ones to introduce new offerings in the market	1☐	2☐	3☐	4☐	5☐
c) We are constantly on the look out for businesses that can be acquired	1☐	2☐	3☐	4☐	5☐
d) Operations in later stages of markets' life-cycle are not part of our strategy	1☐	2☐	3☐	4☐	5☐

[138] Morgan, R. E., and C. A. Strong. (2003). Business performance and dimensions of strategic orientation. *Journal of Business Research* 56: p. 163 – 176.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Analysis					
a) We emphasize effective coordination among different functional areas	1☐	2☐	3☐	4☐	5☐
b) When confronted with a major decision, we usually try to develop thorough analysis	1☐	2☐	3☐	4☐	5☐
c) We use several planning techniques	1☐	2☐	3☐	4☐	5☐

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Defensiveness					
a) We occasionally conduct significant modifications to existing products or manufacturing technology	1☐	2☐	3☐	4☐	5☐
b) We often use cost control systems for monitoring performance	1☐	2☐	3☐	4☐	5☐
c) We often use quality improvement methods		1☐	2☐	3☐	4☐ 5☐
d) We emphasize expert knowledge in specialized areas	1☐	2☐	3☐	4☐	5☐

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Riskiness					
a) We seem to adopt a rather conservative view when making major decisions	1☐	2☐	3☐	4☐	5☐
b) New projects are approved on a "stage by stage" basis rather than with "blanket" approval	1☐	2☐	3☐	4☐	5☐
c) We have a tendency to support projects where the expected returns have high probability	1☐	2☐	3☐	4☐	5☐
d) Our operations have generally followed the "tried and true" paths	1☐	2☐	3☐	4☐	5☐

Please continue on the next page

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Futurity					
a) We emphasize basic research to provide us with future competitive edge	1☐	2☐	3☐	4☐	5☐
b) Forecasting key indicators of our operations is common	1☐	2☐	3☐	4☐	5☐
c) Formal tracking of significant general trends is common	1☐	2☐	3☐	4☐	5☐
d) We often conduct "what-if" analysis of critical issues	1☐	2☐	3☐	4☐	5☐

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Aggressiveness					
a) We often sacrifice profitability to gain market share	1☐	2☐	3☐	4☐	5☐
b) We often cut market prices to increase market share	1☐	2☐	3☐	4☐	5☐
c) We often set prices below competition	1☐	2☐	3☐	4☐	5☐
d) We often seek market share position at the expense of cash flow and profitability	1☐	2☐	3☐	4☐	5☐

BUSINESS ENVIRONMENT

Now we would like to ask you some questions regarding the business environment for a bioenergy company, such as TallOil. Please tick a box for each statement, where 1 means you strongly disagree with the statement and 5 means you strongly agree with it. Please comment after each question if you think it is needed.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. There is a lack of understanding about bioenergy among customers and suppliers, therefore a bioenergy company has to create this understanding for its offerings.	1☐	2☐	3☐	4☐	5☐

Do you have further comments or justification?

Please continue on the next page

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
2. There is a lack of understanding about bioenergy among politicians and decision-makers, therefore a bioenergy company has to create this understanding for its offerings.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

3. There is a lack of standards in the bioenergy industry that constrains new activities, negatively affects the market, or confuses customers.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

4. A company offering biofuels is easy to imitate, therefore the survival of such company is problematic.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

5. For a bioenergy company it is necessary to create understanding of their activities in other established industries.	1☐	2☐	3☐	4☐	5☐

Which industries do you consider in respect to this question?

Further comments or justification?

Please continue on the next page

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
6. A bioenergy company cannot have success in the market without reliable relationships with other established industries.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

7. Vocational and professional educational institutions in Sweden create and spread information about bioenergy.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

8. For the bioenergy industry in Sweden it is easy to obtain support from official institutions, that helps and stimulates your business.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

Has this situation changed over time?

9. The bioenergy industry in Sweden still needs government subsidies in order to be economically viable.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

Please continue on the next page

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
10. The media in Sweden presents Bioenergy in a manner that helps and stimulates your business.	1☐	2☐	3☐	4☐	5☐

Further comments or justification?

Thank you for your co-operation. Please save the file and send it to roberthlep@talloil.se.

AII.2 The Collected Answers

This chapter is divided into two sections. In the first one the answers are presented in the format in which the software tool e-Val generates a report. In the next section these answers are analysed.

AII.2.1 The computer report on the survey

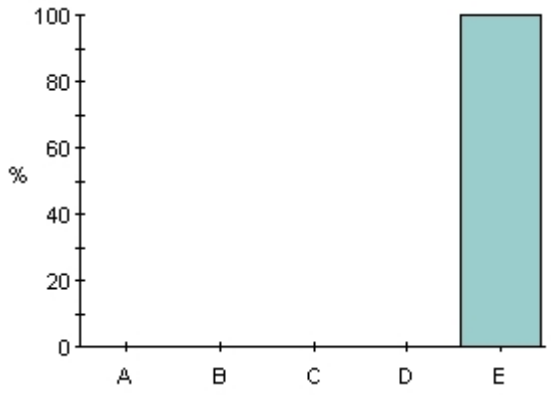
Summary

Total number of answers	5

STRATEGIC ORIENTATION

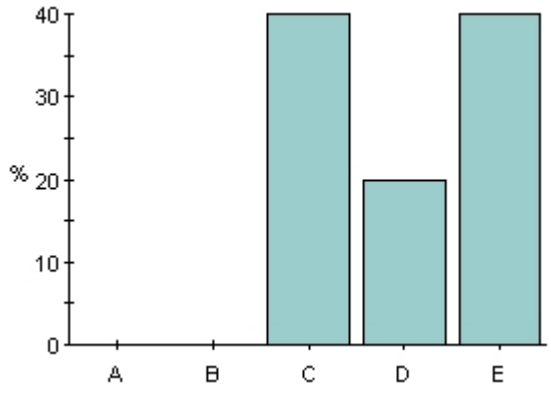
PROACTIVENESS

a) We are constantly seeking new opportunities related to present operations.



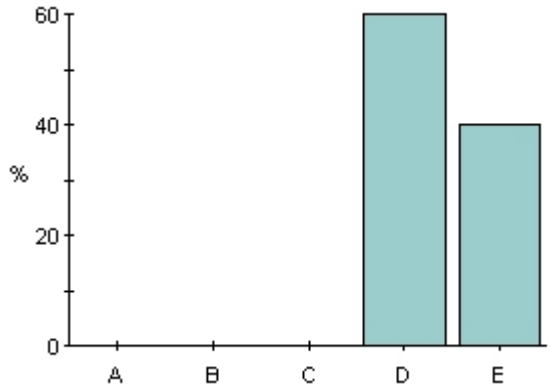
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	0%	0
D) Agree	0%	0
E) Strongly agree	100%	5
Total	100%	5

b) We are usually the first ones to introduce new offerings in the market.



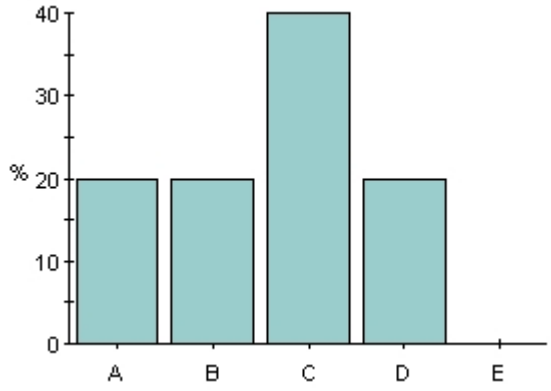
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	40%	2
D) Agree	20%	1
E) Strongly agree	40%	2
Total	100%	5

c) We are constantly on the look out for businesses that can be acquired.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	0%	0
D) Agree	60%	3
E) Strongly agree	40%	2
Total	100%	5

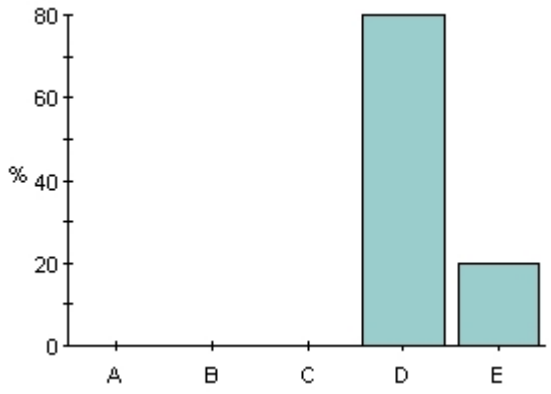
d) Operations in later stages of markets' life-cycle are not part of our strategy.



	%	#
A) Strongly disagree	20%	1
B) Disagree	20%	1
C) Neutral	40%	2
D) Agree	20%	1
E) Strongly agree	0%	0
Total	100%	5

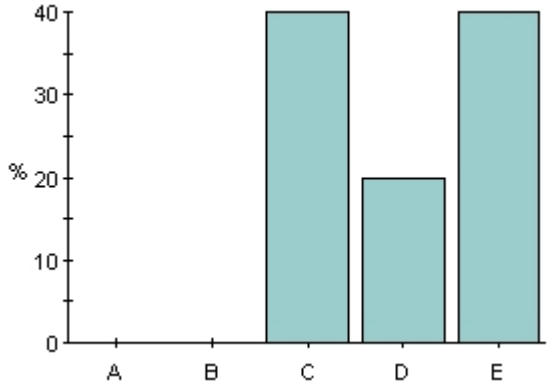
ANALYSIS

a) We emphasize effective coordination among different functional areas.



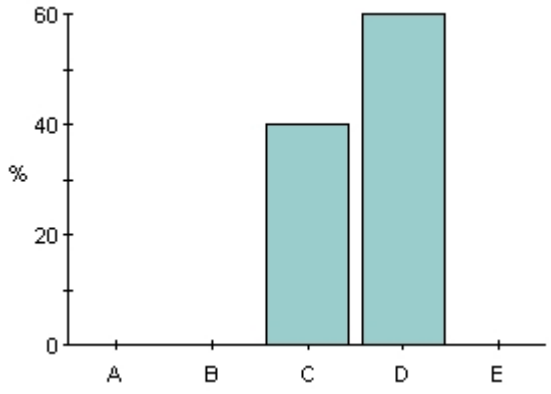
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	0%	0
D) Agree	80%	4
E) Strongly agree	20%	1
Total	100%	5

b) When confronted with a major decision, we usually try to develop thorough analysis.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	40%	2
D) Agree	20%	1
E) Strongly agree	40%	2
Total	100%	5

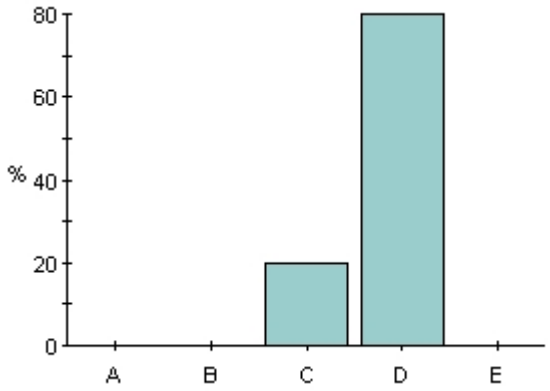
c) We use several planning techniques.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	40%	2
D) Agree	60%	3
E) Strongly agree	0%	0
Total	100%	5

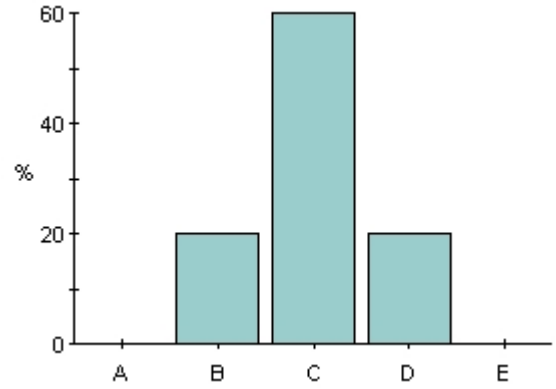
DEFENSIVENESS

a) We occasionally conduct significant modifications to existing products or manufacturing technology.



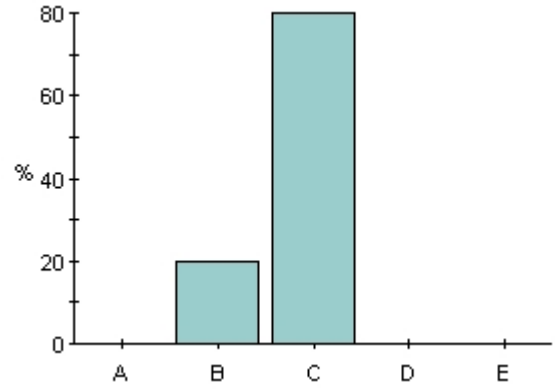
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	20%	1
D) Agree	80%	4
E) Strongly agree	0%	0
Total	100%	5

b) We often use cost control systems for monitoring performance.



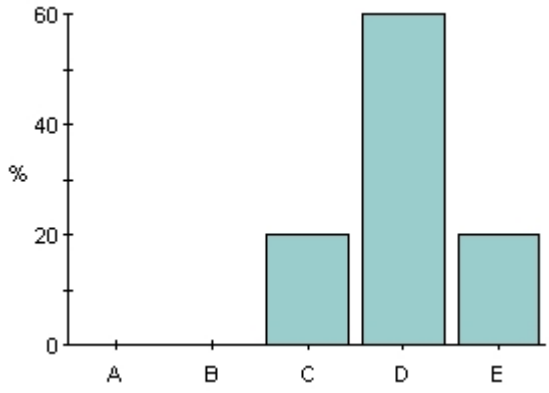
	%	#
A) Strongly disagree	0%	0
B) Disagree	20%	1
C) Neutral	60%	3
D) Agree	20%	1
E) Strongly agree	0%	0
Total	100%	5

c) We often use quality improvement methods.



	%	#
A) Strongly disagree	0%	0
B) Disagree	20%	1
C) Neutral	80%	4
D) Agree	0%	0
E) Strongly agree	0%	0
Total	100%	5

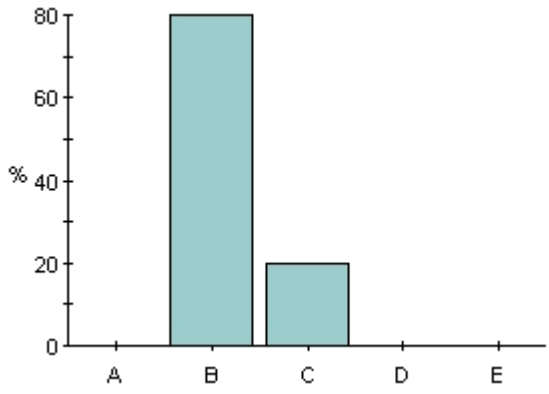
d) We emphasize expert knowledge in specialized areas.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	20%	1
D) Agree	60%	3
E) Strongly agree	20%	1
Total	100%	5

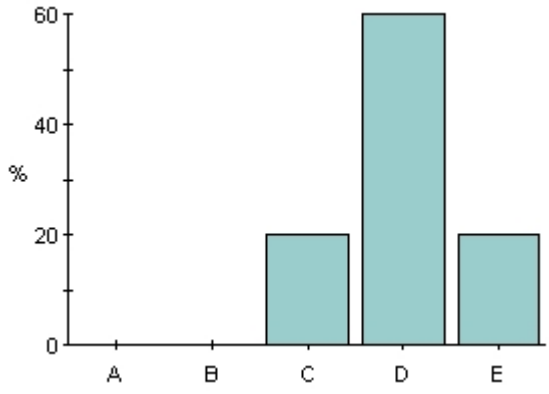
RISKINESS

a) We seem to adopt a rather conservative view when making major decisions.



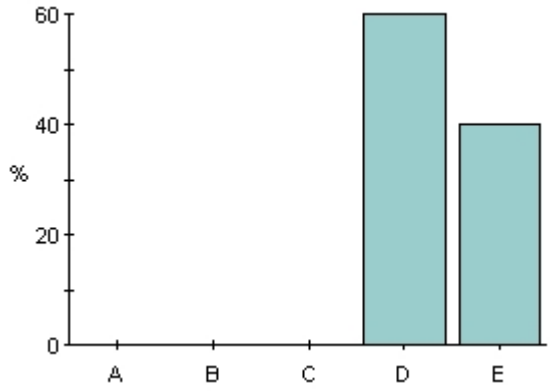
	%	#
A) Strongly disagree	0%	0
B) Disagree	80%	4
C) Neutral	20%	1
D) Agree	0%	0
E) Strongly agree	0%	0
Total	100%	5

b) New projects are approved on a "stage by stage" basis rather than with "blanket" approval.



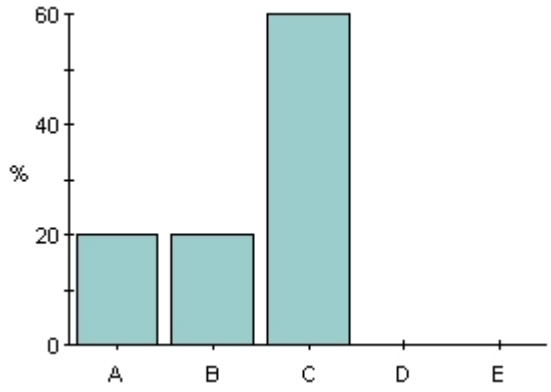
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	20%	1
D) Agree	60%	3
E) Strongly agree	20%	1
Total	100%	5

c) We have a tendency to support projects where the expected returns have high probability.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	0%	0
D) Agree	60%	3
E) Strongly agree	40%	2
Total	100%	5

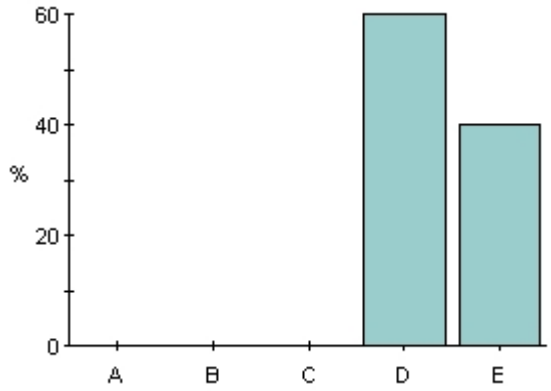
d) Our operations have generally followed the "tried and true" paths.



	%	#
A) Strongly disagree	20%	1
B) Disagree	20%	1
C) Neutral	60%	3
D) Agree	0%	0
E) Strongly agree	0%	0
Total	100%	5

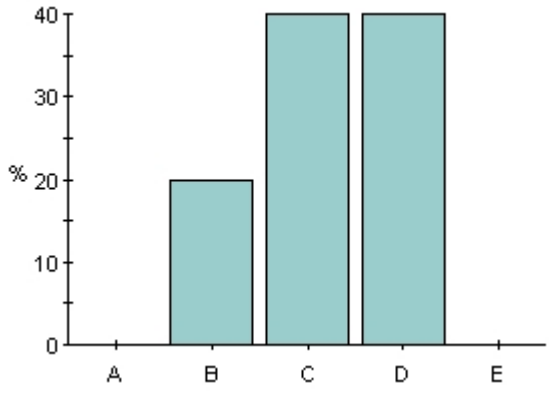
FUTURITY

a) We emphasize basic research to provide us with future competitive edge.



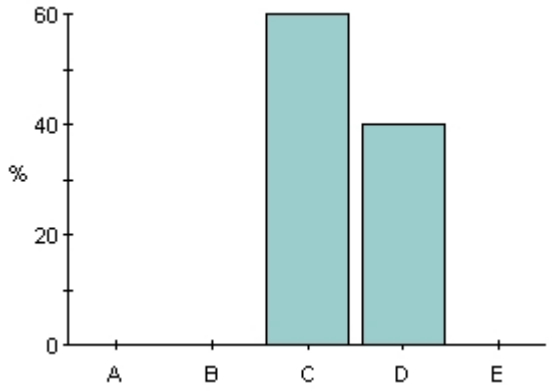
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	0%	0
D) Agree	60%	3
E) Strongly agree	40%	2
Total	100%	5

b) Forecasting key indicators of our operations is common.



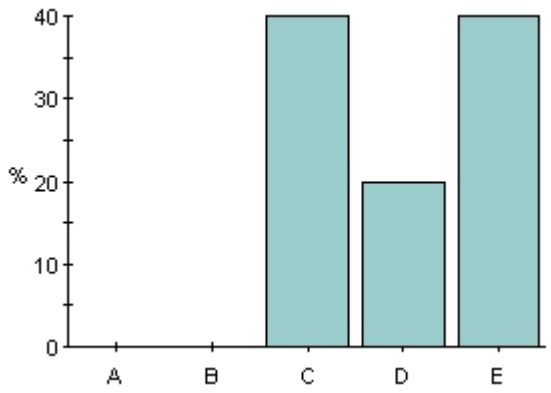
	%	#
A) Strongly disagree	0%	0
B) Disagree	20%	1
C) Neutral	40%	2
D) Agree	40%	2
E) Strongly agree	0%	0
Total	100%	5

c) Formal tracking of significant general trends is common.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	60%	3
D) Agree	40%	2
E) Strongly agree	0%	0
Total	100%	5

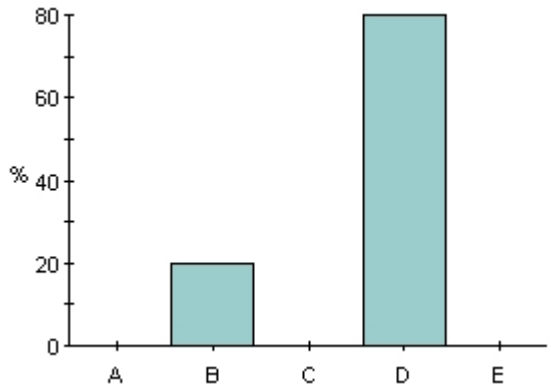
d) We often conduct "what-if" analysis of critical issues.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	40%	2
D) Agree	20%	1
E) Strongly agree	40%	2
Total	100%	5

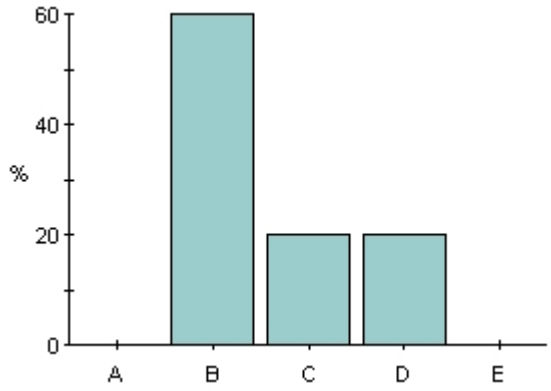
AGGRESSIVENESS

a) We often sacrifice profitability to gain market share.



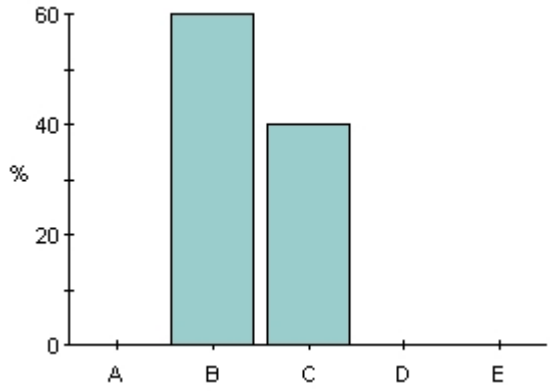
	%	#
A) Strongly disagree	0%	0
B) Disagree	20%	1
C) Neutral	0%	0
D) Agree	80%	4
E) Strongly agree	0%	0
Total	100%	5

b) We often cut market prices to increase market share.



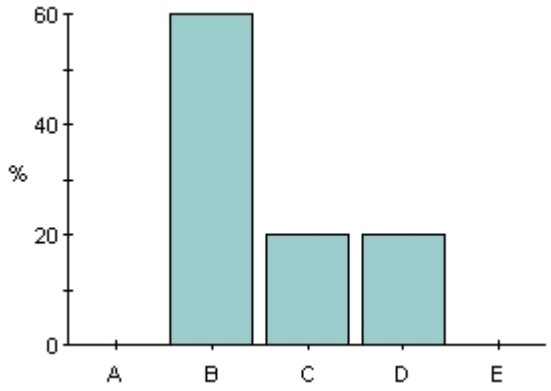
	%	#
A) Strongly disagree	0%	0
B) Disagree	60%	3
C) Neutral	20%	1
D) Agree	20%	1
E) Strongly agree	0%	0
Total	100%	5

c) We often set prices below competition.



	%	#
A) Strongly disagree	0%	0
B) Disagree	60%	3
C) Neutral	40%	2
D) Agree	0%	0
E) Strongly agree	0%	0
Total	100%	5

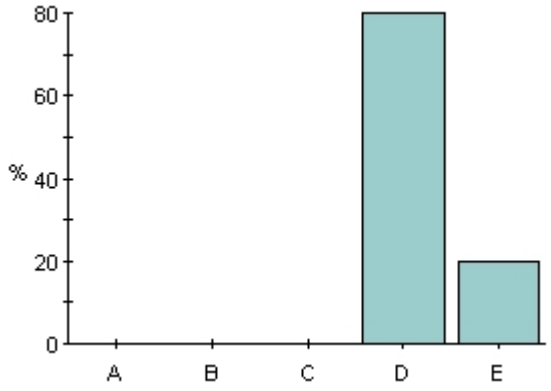
d) We often seek market share position at the expense of cash flow and profitability.



	%	#
A) Strongly disagree	0%	0
B) Disagree	60%	3
C) Neutral	20%	1
D) Agree	20%	1
E) Strongly agree	0%	0
Total	100%	5

BUSINESS ENVIRONMENT

1. There is a lack of understanding about bioenergy among customers and suppliers, therefore a bioenergy company has to create this understanding for its offerings.



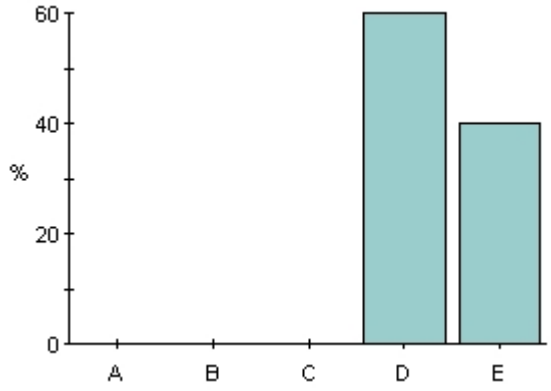
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	0%	0
D) Agree	80%	4
E) Strongly agree	20%	1
Total	100%	5

Do you have further comments or justification?

One has commented on this question

Agree (one comment)
— Much improved awareness in Sweden, slower abroad

2. There is a lack of understanding about bioenergy among politicians and decision-makers, therefore a bioenergy company has to create this understanding for its offerings.



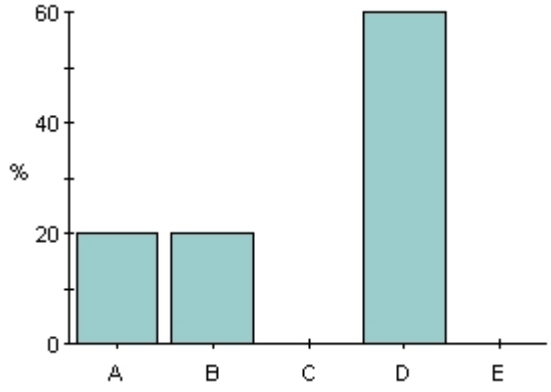
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	0%	0
D) Agree	60%	3
E) Strongly agree	40%	2
Total	100%	5

Further comments or justification?

One has commented on this question

Strongly agree (one comment)
— Much improved awareness in Sweden, slower abroad

3. There is a lack of standards in the bioenergy industry that constrains new activities, negatively affects the market, or confuses customers.



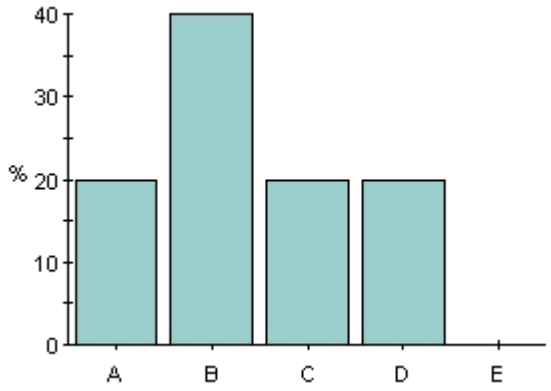
	%	#
A) Strongly disagree	20%	1
B) Disagree	20%	1
C) Neutral	0%	0
D) Agree	60%	3
E) Strongly agree	0%	0
Total	100%	5

Further comments or justification?

One has commented on this question

Disagree (one comment)
— Ok in Sweden, more difficult in many other countries

4. A company offering biofuels is easy to imitate, therefore the survival of such company is problematic.

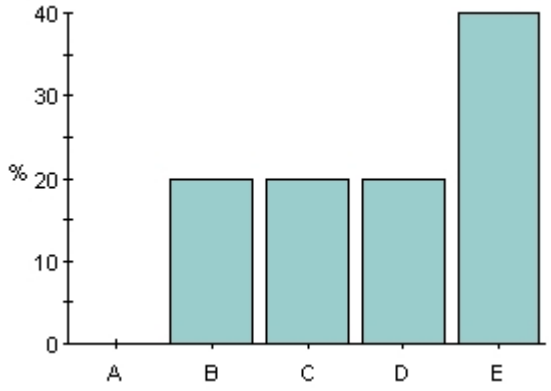


	%	#
A) Strongly disagree	20%	1
B) Disagree	40%	2
C) Neutral	20%	1
D) Agree	20%	1
E) Strongly agree	0%	0
Total	100%	5

Further comments or justification?

No comments on this question

5. For a bioenergy company it is necessary to create understanding of their activities in other established industries.



	%	#
A) Strongly disagree	0%	0
B) Disagree	20%	1
C) Neutral	20%	1
D) Agree	20%	1
E) Strongly agree	40%	2
Total	100%	5

Which industries do you consider in respect to this question?

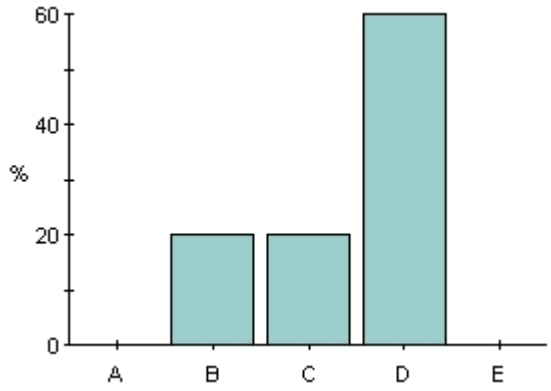
One has commented on this question

Strongly agree (one comment)
— Power production, transport industry, vehicle manufacturers, building & construction etc.

Further comments or justification?

Nobody has answered this question

6. A bioenergy company cannot have success in the market without reliable relationships with other established industries.

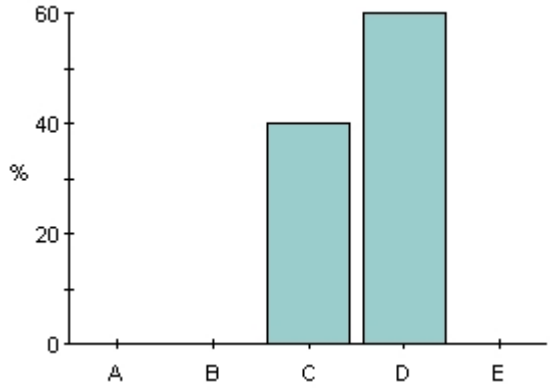


	%	#
A) Strongly disagree	0%	0
B) Disagree	20%	1
C) Neutral	20%	1
D) Agree	60%	3
E) Strongly agree	0%	0
Total	100%	5

Further comments or justification?

No comments on this question

7. Vocational and professional educational institutions in Sweden create and spread information about bioenergy.



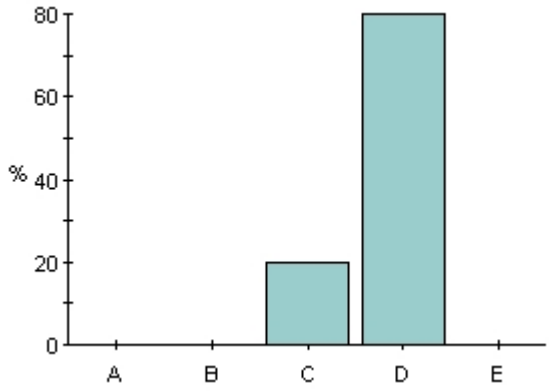
	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	40%	2
D) Agree	60%	3
E) Strongly agree	0%	0
Total	100%	5

Further comments or justification?

One has commented on this question

Agree (one comment)
— So much more now than 30 years ago

8. For the bioenergy industry in Sweden it is easy to obtain support from official institutions, that helps and stimulates your business.



	%	#
A) Strongly disagree	0%	0
B) Disagree	0%	0
C) Neutral	20%	1
D) Agree	80%	4
E) Strongly agree	0%	0
Total	100%	5

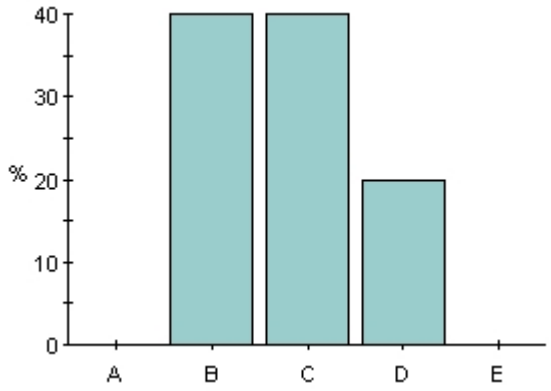
Further comments or justification?

No comments on this question

Has this situation changed over time?

Nobody has answered this question

9. The bioenergy industry in Sweden still needs government subsidies in order to be economically viable.



	%	#
A) Strongly disagree	0%	0
B) Disagree	40%	2
C) Neutral	40%	2
D) Agree	20%	1
E) Strongly agree	0%	0
Total	100%	5

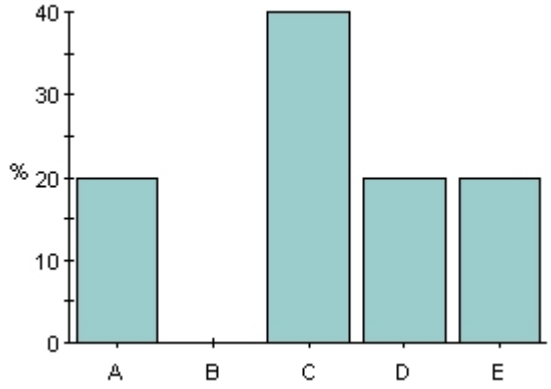
Further comments or justification?

3 have commented on this question

Disagree (2 comments)
— Depending how subsidies are defined
— CO2 + energy taxes + green certificates required. No investment grants required.

Neutral (one comment)
— Environmental taxes are sufficient.

10. The media in Sweden presents Bioenergy in a manner that helps and stimulates your business.



	%	#
A) Strongly disagree	20%	1
B) Disagree	0%	0
C) Neutral	40%	2
D) Agree	20%	1
E) Strongly agree	20%	1
Total	100%	5

Further comments or justification?

No comments on this question

AII.2.2 The analysis of the answers

In this section answers regarding the strategic orientation are going to be analysed. The answers regarding the business environment have been taken into consideration in various parts of this thesis, because their primary aim was data cross-checking. The theoretical framework used for the analysis of the strategic orientation is taken from Morgan and Strong.[139]

In short, the six types of strategic orientation are:[140]

- Agressiveness (exploiting and developing resources before the competitors,[141] generating high performance in sales growth and profitability[142]).
- Analysis (using information and getting advice,[143] solving problems by understanding the processes in the environment[144])
- Defensiveness (focusing on existing domain defence,[145] specialising in selected capabilities and skills[146])

[139] Morgan, R. E., and C. A. Strong. (2003). Business performance and dimensions of strategic orientation.

[140] Summarised from Morgan, R. E., and C. A. Strong. (2003). Business performance and dimensions of strategic orientation.

[141] Clark and Montgomery (1996). Competitive reputations, multimarket competition, and entry deterrence. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 166).

[142] Covin and Slevin (1991). A conceptual model of entrepreneurship as firm behavior; Zahra (1993). A conceptual model of entrepreneurship as firm behavior: a critique and extension. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 166).

[143] Goll and Rasheed (1997). Rational decision making and firm performance: the moderating role of environment. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 166).

[144] Miller and Friesen (1984). Organizations: a quantom view. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 166).

[145] Miles and Cameron (1982). Coffin nails and corporate strategis. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 167).

- Futurity (long-term planning,[147] getting prepared for potential future changes[148])
- Proactiveness (pursuing new products and new markets,[149] experimenting with change[150])
- Riskiness (intiutive risk oriented decision-making,[151] risk taking in combination with venture seeking[152])

Let us first look at the collected answers. The analysis will be done the same way is in the previous appendix with the answers on TallOil's company culture (chapter AI.2.2), i.e. assigning values from -2 to 2 to different levels of disagreement and agreement, multiplying them with the number of answers, summing them up and dividing them with four (or with three as in the case of 'analysis'). The results are in the figure below.

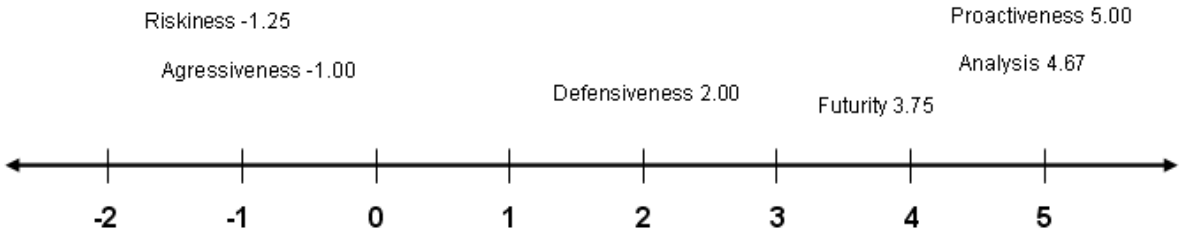


Figure AII-1 TallOil's strategic orientation

TallOil's leadership emphasises traits of proactiveness and analysis. Traits of defensiveness and futurity are emphasised less, but they are still present. On the other hand there are very weak traits of agresiveness and riskiness.

In their sample of 149 companies, Morgan and Strong[153] came to the conclusion, that companies emphasising traits of analysis, defensiveness and futurity in strategic orientation show higher level of business performance. Proactiveness, riskiness and agressiveness related in their sample to the business performance in a limited way. It can be seen from the results above that TallOil is very close to their findings. All the characteristics that are related to high business performance are present with relatively strong traits (i.e. analysis, defensiveness and futurity).

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[146] Hart and Banbury (1994). How strategy making processes can make a difference. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 167).

[147] Boyd (1991). Strategic planning and financial performance: a meta-analytical review. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 167).

[148] Courtney et al (1997). Strategy under uncertainity. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 167).

[149] Morgan, E. R., and C. A. Strong. (2003). Business performance and dimensions of strategic orientation, p. 167.

[150] Dess et al (1997). Entrepreneurial strategy making and firm performance: tests of contingency and configurational models; Lynn et al (1996). Marketing and discontinuous innovation: the probe and learn process. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 167).

[151] Miller (1989). Matching strategies and strategy making: process, content, and performance. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 167).

[152] Baird and Thomas (1990). What is risk anyway? Using and measuring risk in strategic management. Quoted in Morgan, E. R., and C. A. Strong. (2003). *Business performance and dimensions of strategic orientation.* (p. 167).

[153] Morgan, E. R., and C. A. Strong. (2003). Business performance and dimensions of strategic orientation.

According to the two authors, the reasons fur such correlations between different strategic orientations and business performance need to be examined more, but they offer some explanations. Companies that intensively focus their energy on innovations, constant development of technologies etc. can sometimes have a disadvantage against companies who focus also on some conservative strategies. Liability of newness and lack of legitimacy can have different effects on the first-mover and they are not always positive. But on the other hand, late entrance should not be exaggerated.

Morgan and Strong[154] sum up that priorities need to be established to appreciate the benefits of defensiveness, analysis and future-oriented planning. Even though these characteristics are conservative in nature and are in contrast to the offensive proactiveness, riskiness and agressiveness, they provide grounding for competitiveness. Consequently, they conclude, emphasising these characteristics is not so much 'managing on the back foot' but rather caution and timeliness in executing aggressive, proactive and risk-seeking behaviours. Furthermore they also conclude that costs of maintaining aggressive, proactive and risky behaviour should be compared with the payoffs of such behaviour. This conlusion should be noted, because proactiveness is the strongest trait in TallOil's strategic orientation (though closely followed by analysis).

Although the authors stress the need for future research and the same could be said for TallOil, it looks like this company is quite in the line with their conclusions which offer some explanation for its apparent success.

[154] Morgan, E. R., and C. A. Strong. (2003). Business performance and dimensions of strategic orientation.