Wageningen University – Department of Social Sciences

Management Studies Group

IMPROVING COMPANY'S POSITION BY AN INDUSTRY ANALYSIS.

A study on piglet feed industry segment.

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PREFACE

This report is a result of a six month research project, which I have done in order to graduate for my MSc study in Strategic Management from Wageningen University. It was commissioned by the Trouw Nutrition International Company, which wanted to evaluate the opportunities in the piglet feed industry segment.

Hereby I would like to thank and express my gratitude to my supervisors, who supervised me during the project. I would like to thank Emiel Wubben, my university supervisor, for his critical comments and support, which helped me in increasing the quality of my work and this report. I am grateful to Dirk Desmet, from Trouw Nutrition Belgium, for help in conducting the empirical research. I am thankful to my second university supervisor Peter Zuurbier for his remarks and contribution.

Tomasz Kretowski
Wageningen, April 2009

EXECUTIVE SUMMARY

The objective of this thesis was to suggest the appropriate competitive strategies for Trouw Nutrition International (TNI) for the piglet feed industry segment in different EU-25 countries by analyzing the structure and dynamics of the piglet feed industry segment. The piglet feed market has not been researched yet, and till now no information or data sources exist which inform thoroughly on the trends and characteristics of this market. It is very important to understand the industry structure and its characteristics in order to be able to organize a company for effective and efficient competition Therefore this paper focuses on the external factors that shape the structure and dynamics of the piglet feed industry segment. This is best described as the Outside-In approach.

A literature review provided insight into the possible tools and concepts that can be used in order to assess the industry structure and dynamics. This thesis has applied the Porter's five forces model, comparative industry structure analysis and Key Success Factors (KSFs) concepts. The goal of applying Porter's five forces model was to assess the five competitive forces that shape the industry at two points of time: 2008 (now) and 2013 (in 5 years time). By assessing the forces at two points of time it was possible to uncover the dynamics of the industry. The goal of KSFs' analysis was to indicate which factors are of the highest importance and which a company should possess in order to be successful on the piglet feed market in different EU countries. Another outcome of the literature study was the chosen classification of competitive strategies. The classification that was used in this research comes from Treacy and Wiersema (1995), who proposed 3 different competitive strategies: (1) Operation Excellence – value proposition: the best cost, (2) Product Leadership – value proposition: the best product and (3) Customer Intimacy – value proposition: the best total solution.

The scope of the field research comprised of eight countries: Belgium, The Netherlands, Denmark, Germany, Ireland, Poland, Hungary and Czech Republic. In order to collect necessary information concerning each of the selected markets, employees, of the feed company – TNI, have been asked for help. First they were asked to fill out the pre-interview questionnaire, which covered various aspects of the piglet feed industry segment. Its goal was to gather upfront information about the situation in each of the investigated countries. At a later stage, the employees were interviewed with the use of the structured document, which aim was to collect structured data that can be compared between different countries. Addtionally the data about piglet feed market characteristics, like population of sows, farm structure depending on the sow herd size were gathered from Eurostat (Statistical Office of the European Communities) and FEFAC (European Feed Manufacturers' Federation). Based on the interview results and additional statistical data about the market characteristics appropriate strategies could be recommended.

The analysis of the results of the total sample and individual countries showed which strategies should be applied according to the structure, dynamics and characteristics of the market. Concerning the total sample, of 8 countries, it has been found that the strength of all forces constructing it will not be high in

the year 2013. In general, only the buyers of the products will gain considerable market power in the coming 5 years, and the competition on the market is expected to become fiercer. The other forces will be remaining at rather low levels. It implies that the piglet feed market is expected still to be attractive. Combining the results of the KSFs analysis it has been found that the leading strategy overall that should be applied is the Customer Intimacy, which ought to be supported by the Product Leadership strategy.

Concerning the strategies for individual countries, as some of the chosen countries share similarities, they were grouped. In the end three groups of countries were identified and strategies for each group were recommended. Belgium, The Netherlands and Denmark have been found to be well-developed markets with similar market characteristics and the strategy of Product Leadership is recommended. For Ireland, Poland, Hungary and Czech Republic the Customer Intimacy strategy has been found to be most appropriate. Germany is a single, but large target country, which suits a combination of both strategies: Product Leadership and Customer Intimacy.

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1. INTRODUCTION – PROBLEM DEFINITION

The need for food in the world, with growing population, is increasing, as the incomes of the population are increasing. People tend to eat diverse products, including meat, fish or dairy products (Nutreco 2008). Food production has a direct impact on the feed production. The more food is needed the more high quality feed needs to be produced for efficient animal production.

Nutreco as an international animal nutrition and fish feed company is trying to contribute to the feed-to-food value chains. One of the Nutreco companies is Trouw Nutrition International (TNI), which is the global leader in premixes, innovative feed specialties and nutritional services for the animal nutrition industry. One of the challenges TNI is facing at the moment is competition in the piglet feed industry segment in different European Union 25 countries. Although the piglet feed industry segment seems to be attractive, not enough attention was paid to the segement and it has not been investigated thoroughly yet.

At this point it is wise to present the description of what piglet feed is. The definition of piglet feed that is used in this thesis is: *the full range of feed products for piglets 2 weeks after weaning (complete feeds) and concentrates for the link period (which are mixed on the farm with i.e. cereals). The products are based upon high quality dairy ingredients or same quality vegetable replacements of theses ingredients*.

No reports or studies have been found which would be dealing piglet feed. TNI managers also confirmed the scarce information sources. The information that this segment has numerous small and big players, out of which, no one has a dominant market share, was gained from TNI employees. TNI is willing to change this situation and create a 'picture' of the current market situation and future trends and developments of this feed segment (timeframe 5 years). It foresees high opportunities in this part of the industry and hopes to increase its sales, gather higher market share and eventually become the piglet feed industry segment leader in the countries of EU-25 in the coming years.

Piglet feed industry segment, as the majority of other industries nowadays, appears to be competitive, and, as everywhere, competing there seems to be more challenging than ever. Companies have to keep in mind the constantly changing environment and forces like globalization, advances in information technology, demographic shifts, demmasification of society and hypercompetition (Ilinitch et al. 1996). The last stated factor, which describes one form of industry structures, indicates that market structure plays a crucial role when a firm wants to act successfully. By knowing the industry structure, a company can apply an appropriate strategy and make use of business opportunities that are associated with that structure (Barney 2002). In "Competitive advantage: Creating and Sustaining Superior Performance" (Porter 2004) it is recommended that a company conducts an industry structure analysis and then chooses a specific firm positioning. That is the reason why the empirical step of this project should be the research on the industry structure, as well as on the industry dynamics. As most of the industries consist of different segments, for the purpose of this research, from the broad feed industry, the industry segment of piglet feed will be the focus. Some general questions, concerning that issue, might be formulated and investigated in further research, like i.e.: What is the structure of piglet feed industry segment in different EU-25 countries? What are the

differences between 25 EU countries? These questions might be answered by using the tools from Industrial Organization (IO) theories, i.e. Porter's five forces analysis. This model, analysis, of five forces (threat of entry, threat of substitutes, power of buyers, power of suppliers and competitive rivalry) constitute an industry's 'structure' and its attractiveness (Johnson et al. 2008). Other important measure might be defining at which stage of the industry life-cycle a certain industry and market are. The industry life-cycle is a model that describes the evolution of the industry from development stage, through period of rapid growth, shake-out, and maturity to decline stage. In contrast to the five forces model, which is considered to be static, the life-cycle model is a dynamic one, which means that it focuses on how industry or its segments evolve over time (McGahan 2000).

It also might be wise to use tools, which describe the industry, in combinations. For example the matrix which combines the industry life-cycle tool with the size of the market (market share owned by the largest *m* companies) might be of use for analysis. Myriad of possibilities exist and it is important to choose the appropriate ones, which will best describe the industry segment of piglet feed. These possibilities will be investigated in the literature chapters of this research paper. The theories, which describe the mentioned tools and which can be used to analyze the industry structure and its dynamics, are Industrial Organization and Strategic Management theories.

In order to stay on the market and to maintain or improve a position, companies have to constantly revise their strategies and adjust them whenever required, according to internal and external factors. This paper focuses mainly on the external factors that form the business environment, which can be best described as the Outside-In approach. That is the reason why it is very important to understand the industry structure and its characteristics in order to be able to organize a company for effective and efficient competition, i.e. capitalize the advantage of being first-mover on the market (Agarwal & Gott 1996). This paper will attempt to suggest certain competitive strategies that should be applied in each of the analyzed countries or cluster of countries. The strategies will be directly related to the characteristics of the piglet feed industry segments in different countries and will give recommendations what will suit best in a particular case. Strategies should lead to increased sales, bigger market share and stronger position on the market and eventually to market leadership.

1.1 CONCEPTUAL DESIGN

The conceptual design deals with determining the subject of the research project and consists of research objective, research questions and research framework (Verschuren & Doorewaard 2005).

1.1.1 Research objective

A research objective refers to an area of interest, which is feasible to research in terms of investigated problem aspect and time. It should also be useful and clear, which means that it should precisely indicate what the project's contribution to the solution of the problem will be (Verschuren & Doorewaard 2005).

The feed industry, and in particular the piglet feed segment has not been investigated much and little attention has been paid to it till now. Hardly any studies have been conducted on this industry, especially for the aspect of its structure and dynamics (i.e. its place in the life-cycle stage). This research paper will try to create a framework (combination of tools), which will be used to analyze the piglet feed industry segment. Ideally this framework may be used by others as a guideline for an analysis of other feed industry segments as well.
This research project will contribute to the challenges that Trouw Nutrition International (TNI) is foreseeing at the moment. It wants to increase its sales volume of piglet feed products and gather piglet feed market share in 25 European Union countries. TNI wants to know how to organize itself to reach the above mentioned objectives according to the situation on the piglet feed industry segment.

The objective in relation to this research project can be stated as follows:

***To** suggest the appropriate competitive strategies for Trouw Nutrition International (TNI) for the piglet feed industry segment in different EU-25 countries **by** developing a framework (combination of tools) of analysis and analyzing structure and dynamics of the piglet feed industry segment.*

Type of practice oriented research project
According to the model of *Intervention cycle* (Verschuren & Doorewaard 2005) this research project can be classified in two stages: *diagnosis* and *design*.
Diagnosis stage examines the background and the cause of the problem to help to establish the course of action, which needs to be taken to find a solution. In relation to this research, diagnosis stage is concerned with the first step of this research project, which is aiming at getting an insight in an industry structure and its dynamics in, if possible, various EU-25 countries. In other words, in this stage the use of various Industrial Organization and Strategic Management tools and concepts will be used in order to analyze the piglet feed industry segment, i.e. industry structure or stage in the industry-life cycle, etc. This part of a research should give a 'picture' of the piglet feed industry.
Design stage develops an intervention plan, which helps finding a solution for the problem. In this paper it will be dealing with proposing the appropriate strategy for various countries, where the piglet feed industry segment is elaborated. The appropriate strategies for firms will be described and suggested. The indication of which strategy to apply in a particular country will be based on its industry characteristics. It will propose the best course of action, which should be taken in order to improve the company's position in this industry.

Here it needs to be stated which countries of the EU-25 are of the broad interest of Trouw Nutrition International (TNI). They are as follows: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom.

Due to limitations, out of which the most important are time and data availability, the countries, which are of the most interest, should be prioritized. After the discussion with TNI managers it was concluded that the chosen countries, which are analyzed in detail in this paper are: **Belgium, Denmark, The Netherlands, Germany, Ireland, Poland, Hungary, Czech Republic**. The analysis, which will be based on the aforementioned countries, can be later conducted on other countries, of the broad interest of TNI, in the same way, with the same framework and methodology as used for the countries investigated in this research.

1.1.2 Research framework

Research framework of this paper consists of four elements, which are: literature study, empirical review, results, and conclusions. Below each of the element is described in more detail and the whole picture of the framework is presented on the next page in figure 1.

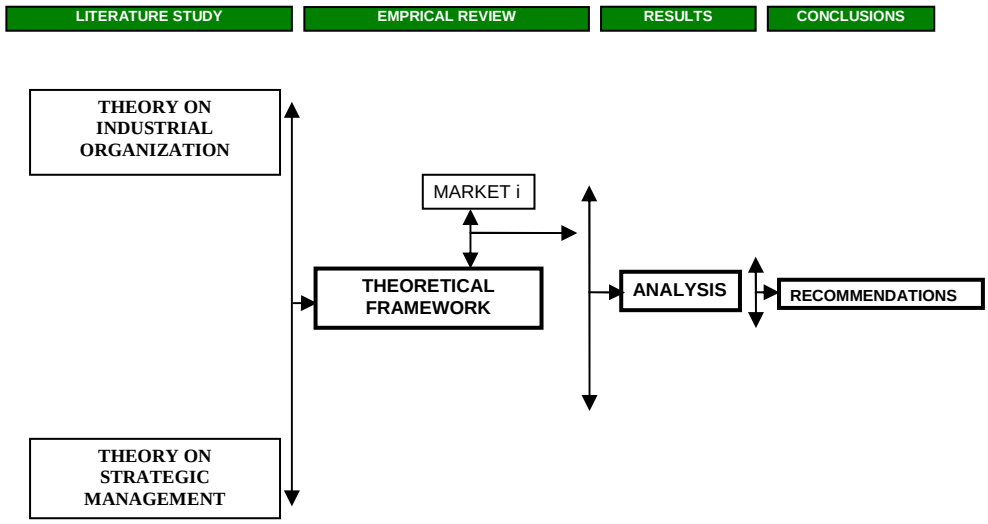
Literature study – here the existing literature on Industrial Organization and Strategic Management will be reviewed in order to create a strong base for further research. It will consist of two parts. First part will focus on looking for criteria for assessing static and dynamic industry characteristics, i.e. industry structure, stage in industry life-cycle, etc. The second part will be dealing with searching for competitive strategies a firm can apply, according to the characteristics of the industry, mentioned in the first part.

Empirical review – here the use of the findings from literature study will be used, in order to asses the piglet feed industry segments in various EU-25 countries.

Results – here the results of the analysis will be presented for the industry segments in each of the selected countries.

Conclusions – here the discussions of the results of an analysis will take place. Industry segments' characteristics for different countries will be presented with accompanying strategies that a firm can apply.

Figure 1 Theoretical framework



1.1.3 Research questions

The main research question in relation to this research project is:

What are the appropriate competitive strategies for Trouw Nutrition International (TNI) to apply in the piglet feed industry segment in the different EU-25 countries, according to its market characteristics and structure and dynamics?

The sub-questions are stated as follows:

I. Theoretical section:

1. What tools and concepts from Industrial Organization and Strategic Management literature may constitute a framework of industry analysis (according to its characteristics)?
2. What are, according to scientific literature on Strategic Management, the possible competitive strategies to apply, according to the industry structure and its dynamics, in order to achieve competitive advantage over rivals?

II. Empirical section:

3. What data sources and data collection method will be used in the empirical part of the research?
4. What is the structure and dynamics of the piglet feed industry segment in the total sample?
5. What is the structure and dynamics of the piglet feed industry segment in individual countries and do some countries possess similar characteristics?

1.2 TECHNICAL DESIGN

The technical design discusses the question of what needs to be done in order to arrive at an answer to the research questions of the research issue within a certain time frame (Verschuren & Doorewaard 2005). It comprises of three parts: research material, research strategy and research planning. They are described below.

1.2.1 Research material

This part focuses on what kind of material is needed and how and where it can be gathered. The kind of material depends on the nature of the research issue of the project. At the beginning it is wise to know the objects on which the information will be gathered and the type of information needed. According to Verschuren & Doorewaard (2005) three main questions need to be answered successively:

1. What are the main categories of research objects that can be distinguished?
2. What type of information of theses objects are relevant to the research project, and how can this information be identified?
3. Where to gather this information?

According to the first question, the main categories of research objects, in relation to this study, are: theoretical (industry structure and dynamics, competitive strategies to apply related to the specific industry structure and dynamics) and empirical objects (piglet feed industry segment characteristics in chosen EU countries).
For the theoretical objects the existing *knowledge sources* are used in order to arrive to the answers to the research issue from the theoretical part of this paper. The main field of interest is in Industrial Organization theories and Strategic Management theories. Here the main use will be of scientific literature (books, articles, publications, etc.), which are available in libraries (Wageningen University library and possibly Gent University library) and in digital sources like Web of Science, Scopus and other Internet based sources (i.e. Google Scholar). The concepts, which will be searched, will be in example: industry structure, industry concentration, industry life-cycle, competitive strategy, etc. At this point it can be said that the main journals, which are used are: International journal of industrial organization, Journal of agricultural and food industrial organization, Strategic management journal, Academy of management journal, Academy of management review and Harvard Business Review. The full access to the mentioned journals is provided by the Wageningen University in the digital form and in some occasions also in a hard copy.

In the case of empirical objects the *data sources* are used. Information is gathered from documents, media and people, involved in the feed industry. Documents and media concerning various aspects of mentioned industry and its characteristics are collected and analyzed. The main source of them is Trouw Nutrition International (TNI) Company. The managers and other employees of the company are interviewed concerning the piglet feed industry. The questions asked are either in the form of a questionnaire, which is sent by email, or by a face-to-face or telephone interview. Also other stakeholders are taken into account, whose documents, media and publications are easily available (i.e. during the EuroTier 2008 event in Hannover in Germany or from the Dutch regulatory industrial organization - Product Board Animal Feed – dutch: Productschap Diervoeder -PDV). People form the feed industry, mainly from the TNI but also from the other feed companies, are an important source of information, of course only if available. Also the research institutes (i.e. LEI institute), universities (i.e. Warsaw University for Life Sciences) are contacts. Last but not least the Eurostat (Statistical Office of the European Communities) and FEFAC (European Feed Manufacturers' Federation) is an important source of information, when conducting an analysis of pig population and feed production in different countries.

Here it has to be stated that as the main source of information, about chosen countries, is the Trouw Nutrition International and its employees from particular countries, there is a chance that the data gathered on piglet feed industry segment might be biased. The key reason is that the company, as one of the actors', is active in the investigated industry and might have its own view on the industry. To overcome this problem, several other sources of data are used as mentioned before. The data gathered from different sources are confronted with each other and the conclusion is drawn. This method should help to present more reliable results.

1.2.2 Research strategy

The first part of this research is a literature study, which helps to find the appropriate tools and concepts and to create a framework, which is used in the empirical section. There are two main fields of science, where the literature study takes place: Industrial Organization theories and Strategic Management theories. The theoretical investigation creates a base upon which the empirical review is done.

The research strategy in the empirical part of this paper is a comparative case study. The difference between a single case study and a comparative case study is that not an individual case is studied, but several interrelated cases are compared instead (Verschuren & Doorewaard 2005). The reason why, in this paper, the comparative case study is used is that the main objective of the research is to suggest the appropriate competitive strategies for Trouw Nutrition International (TNI) for the piglet feed industry segment in chosen EU countries. These various countries where the research problem is investigated show that this type of a case study should be applied. Each country's situation and industry characteristics differ and it becomes a single case, which should be thoroughly investigated.

An analysis of the theories, mentioned in the research framework and research material, in a combination with empirical review gives a comprehensive insight into the situation on the piglet feed industry segment in each investigated country.

At this point it is important to mention the possible limitations of this research. First limitation is the time constraint. As the project aims at analyzing the piglet feed industry analysis in various EU countries it might happen that not enough time is available to thoroughly investigate each particular country. That is the reason why the countries were prioritized and few of them (8) were chosen to be investigated in detail. Nevertheless it might also appear that these 8 countries need more time to be fully researched. If this is the case the recommendations for further research will be given, in order to arrive at a sound answer to the problem.

The other important issue is finding the right people in different countries, with whom the work could be done, and make them cooperate. This can be overcome with the help of TNI, which can create a list of people in various countries, who are responsible for piglet feed, and involve them in the project. Ideally, all persons engaged in the project could take part in a discussion at a later stage to reflect on the data that was collected and to discuss the progress and further needs.

1.2.3 Research planning

Research planning aim at presenting an overview of the activities that are carried out and to present an order of periods in which these activities are carried out. This research project covers a period of approximately 6.5 months, starting from 15 September 2008 and ending 31 March 2009. During this period there are 28 weeks and 137 working days of 8 hours each. The time on the project is spent in two country locations: The Netherlands (Wageningen and Putten) and Belgium (Gent). The general overview of the time allocation for different activities is presented in the table 1 below.

Table 1 Activities allocation

Month /Activity	15 Sep.	Oct	Nov	Dec	Jan	Feb	Mar
Getting familiar with the project topic	W						
Project proposal		W					
Literature study			W + G				
Empirical review				G			
Conclusions						W	
Report writing						W	
Final report - delivery							W

Locations: W – Wageningen, G – Gent;

1.2.4 Outline of the thesis

This thesis consists of six chapters. Chapter 1 presents the conceptual and technical design of the research. The theoretical background of the study is presented in Chapter 2. Chapter 3 discussed the methodology applied in the research. The following Chapter 4 presents the results of the study and analysis. Chapter 5 provides conclusions and answers to the research questions. The final Chapter 6 gives recommendations and discusses the findings and limitations of the study.

2. THEORETICAL BACKGROUND

This chapter will start with the introduction to the theory, which will present the selection of tools that will be used in the industry analysis. The introduction will be followed by a description of these tools. First, industry structure tools will be presented: the Porter five forces model and the Key Success Factors concept. Secondly a comparative industry structure analysis tool, which assesses the industry dynamics, will be described. The subsequent subchapter will deal with the competitive strategies that organizations can apply according the characteristics of the industry. The following theory subchapter will summarize the theoretical tools and will present the theoretical framework, which is used as the base for the empirical research. The last subchapter will provide answers to two research questions that should be answered after the literature study done. These questions are:

RQ1. What tools and concepts from Industrial Organization and Strategic Management literature may constitute a framework of industry analysis (according to its characteristics)?

RQ2. What are, according to scientific literature on Strategic Management, the possible competitive strategies to apply, according to the industry structure and its dynamics, in order to achieve competitive advantage over rivals?

2.1 INTRODUCTION

The business environment is what determines the firm's fate. Therefore companies should adapt strategies, which will adequately guide them on how to act and behave in a competitive environment. There are various definitions of a strategy, which describe it as: *the direction and scope of an organization over the long term, which achieves advantage in changing environment through its configuration of resources and competences with the aim of fulfilling stakeholders expectations* (Johnson et al. 2008) or *the integrated set of choices, by which a firm tries to reach its objectives* (Hambrick & Fredrickson 2001). To paraphrase, a strategy is a set of actions that need to be taken in order to achieve goals.

According to strategic management literature, strategy can be formulated at different levels within an organization. There are three main levels of strategy formulation: corporate-, business- and functional-level strategy. Corporate-level strategy aligns the various business levels strategy and is concerned with the scope of entire organization. Business-level strategy deals with how the particular units of an organization will compete in their industries, that is why sometimes it is also called 'competitive strategy' (Johnson et al. 2008). It also incorporates all the functional-level strategies within a business unit, which refers to specific functional aspects of this unit. Some authors (Wit & Meyer 2004) add, on top of this classification, the network-level strategy, which is present when firms cluster into groups and need one coherent strategy for the entire group. Each level of strategy aggregation is executed at specific levels of an organization - table 2.

Table 2 Levels of strategy

LEVEL OF AGGREGATION	LEVEL OF ORGANIZATION
Network Level	Alliance Partnership
Corporate Level	Corporation Group
Business Level	**Operating/business Unit**
Functional Level	Functional Department

Source: Based on Wit & Meier (2004).

This research thesis will focus on the business-level strategies, as the objective presented in the chapter 1.1.1 aims at suggesting the competitive strategies for a business unit of Nutreco Company - Trouw Nutrition International (here and after TNI) in the specific feed industry segment, which is the piglet feed segment in particular.

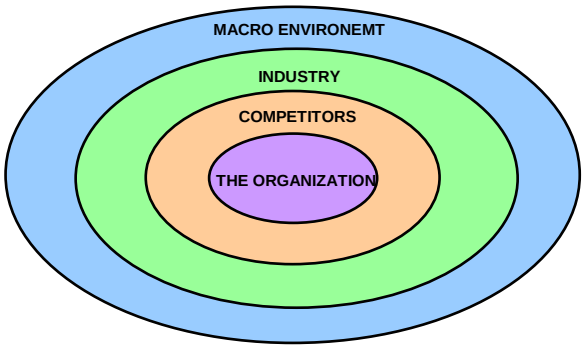
When a firm deals with strategy issues at a business-level it has to choose a perspective whether it should be market-driven or resource-driven. Companies have to adapt to the market characteristics on the one hand, or build their organization on the strengths of their resource bases and activity systems on the other hand (Wit & Meyer 2004). The first perspective is called the *outside-in* perspective and the second one is the *inside-out* perspective. The main questions, which divide these two perspectives, are: Should the firm adapt to the environment or should it try to influence it and adapt according to its organizational base? In other words: Should it focus more on business opportunities or on its own strengths? Researches are divided on how the firm should be acting and which perspective it ought to adapt.
The perspective, which primarily will be used in this research paper, is the *outside-in* approach. There are two main reasons for that choice: first of all the company who commissioned this project, TNI, is interested more in exploring its business environment and the second reason is that there are hardly any studies, research, dealing with the piglet feed industry. Therefore this paper will try to contribute to understanding the rules and state of dependencies in the piglet feed industry segment, which is the one of the objects of this thesis.

The outside-in perspective states that the environment should be the basis on which a strategy is supposed to be build. Many authors say that successful companies are market-oriented and their main focus is on their business environment (Day 1990). According to this approach organizations should try to position themselves on the market according to its characteristics and developments, therefore some authors call this perspective 'the positioning approach' (Mintzberg et al. 1998). Firms ought to observe the market movements, their customers and competitors' behaviors in order to be able to reply to fast changing circumstances and formulate appropriate ways of action (Jaworski & Kohli 1993). The point is to be faster than competitors, gain competitive position and win the profits from the market. Being faster also means that a company can be first who understands and develops the

needed resource base (focal point of inside-out perspective), and thanks to this can achieve a first-mover advantage (Lieberman & Montgomery 1988; Lieberman & Montgomery 1998).

The external context of a firm can be presented in the form of 'layers', which surrounds the organization and has an influence on its existence. This can be seen in the figure 2 below.

Figure 2 The business environment of the organization



Source: Based on Johnson et al. (2008)

As presented the business environment of an organization can be depicted as a three closing layers, which are (1) the macro environment (2) the industry environment and (3) the competitors, within which strategic groups are formed that differentiate from others in the larger industry.

The *macro environment,* which principally consists of the broad environmental factors, which has a greater or lesser influence on almost all organizations (Johnson et al. 2008). The simple but widely used tool to asses the macro environment is the PESTEL analysis, which assesses political, economic, social, technological, environmental and legal factors. It provides a nonexhaustive list of potential influences of the environment on the organization. It is the farthest layer of the organization's business environment. Its main focus is on the future impact of macro environmental factors, based on which the scenarios for the organization, on how to compete profitably, can be build.

The *industry* is the closer layer which has more direct influence on firm's behavior. Industry is defined as: *a group of firms producing the same, or with the similar characteristics, product or service* (Rutherford 1995). In other words in an industry *exists supply side similarity* (Kay 1993). One of the most used studies on industry competitiveness (Porter 1980) defines industry as: *a cluster of firms, which produce products that are close substitutes to each other.* The most popular tool to analyze the industry is the five forces framework (Porter 1980), which assesses the attractiveness and the structure of the industry. It consists of five forces, namely: effects of rivalry, threat of new entrants, threat of substitutes, bargaining power of suppliers and of buyers. By making these forces explicit one clarifies the attractiveness of the industry. It is crucial to understand the potential threats and prepare the right action plans.

The layer closest to the organization, competitors, which may be grouped into strategic groups, is the 'space' where the organization is doing their everyday business. The firm knows explicitly their direct competitors and can learn what is really needed, what key assets and skills have to be possessed in

order to be successful. To uncover these assets and skills, the concept of key success factors (KSF), often called critical success factors, can be used (Vasconcellos de & Hambrick 1989; Amit & Schoemaker 1993). It identifies these factors that need to be met, by a firm, in order to successfully compete in the industry. According to the industrial organization approach the KSF are dictated by the industry characteristics and in this research, this concept will be used in the 'industry' meaning.

The five forces model is rather static, as it presents a 'snapshot' of the current situation. Therefore dynamic tools and concepts should be used in order to asses the dynamics and trends within an industry. The industry-life cycle model is a useful tool to asses the dynamics. It describes the evolution of the industry, starting from a development stage and finishing with the decline stage (Klepper 1997). Each stage has implications for the five forces from the Porter's model.
The other tool that can assess the dynamics of the industry is the comparative industry structure analysis (Johnson et al. 2008). It compares the five forces over time in a 'radar plot'. The power of five forces can be put on five axes. The enclosed area, which is formed by lines between axes, indicates the attractiveness of the industry. It can be done within the time frame, i.e. in the year 0 and in the year 5. In this way the trends in the industry structure can be identified.

The short analysis above shows that the business environment of an organization plays a crucial role in developing competitive strategies. Therefore it is crucial to understand it well and build a company strategy according to 'the rules of the game' (Hamel 1996). By the rules it is meant all the constraints that an industry impose, which can significantly reduce the possible strategic behaviors (Prahalad & Doz 1987). Therefore this research paper will focus on the industry analysis, which purpose is to identify its attractiveness, uncover the forces that shape it, protect competitive advantage by defending against forces, extent competitive advantage and proactively anticipate changes in the industry structure.
This research paper has a goal to analyze the piglet feed industry in EU countries. In order to narrow down the scope of analysis, only the industry and competitors layers of the business environment will be analyzed. The tools that will be used are: Porter's five forces model, comparative industry structure tool and the concept of key success factors (KSF). These tools will help in the analysis of the industry structure, its dynamics and special characteristics.

Additionally, the competitive strategies that a firm can apply according to the industry characteristics will be described. The competitive strategies are concerned with the bases on which a business unit can achieve competitive advantage in its industry. As it was mentioned before, business environments are dynamic systems, to which organizations have to adapt and which seems to be an ongoing challenge. To be successful, organizations have to gain a competitive advantage over their rivals, which are active in the same industry. A firm needs to accumulate enough power to offset the demands of buyers and suppliers, to outperform rivals, to discourage the new firms from entering the business and fend off the threat of substitutes (Wit & Meyer 2004). This advantage should, preferably, be sustained over a long period.

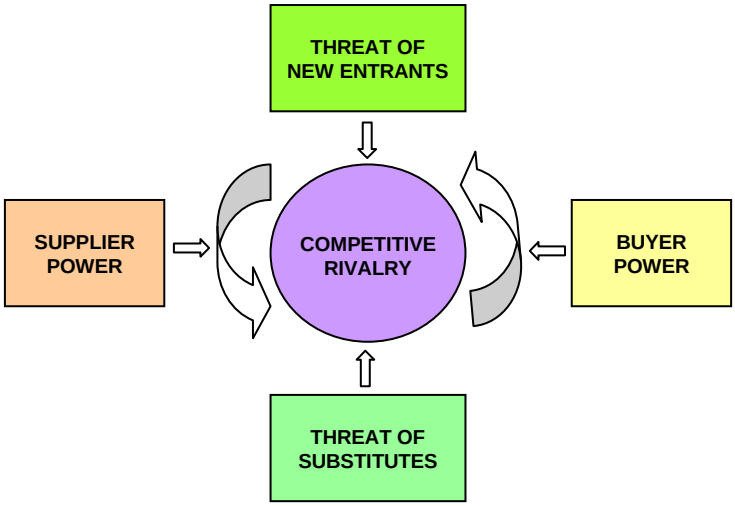
2.2 INDUSTRY STRUCTURE

Organizations compete in their industries for a favorable competitive position among competitors and the forces that shape the industry competition. Therefore it is crucial to understand the rules of an industry competition and its attractiveness. It can be done using the five forces model.

2.2.1 Porter's five forces model

Five forces model was developed by Michael Porter in 1980 and it is a widely known framework, which helps to assess the industry's attractiveness and to design the competitive strategies that firms want to follow. The model employs concepts, which have their origin in Industrial Organization (IO) literature. The model uses the 5 forces that shape industry structure and competitiveness. These forces are: the threat on new entrants, the bargaining power of suppliers, the bargaining power of buyers, the threat of substitutes and competitive rivalry among the existing competitors (Porter 1980). There are various other researches that add to this model other forces, i.e. complementors (Brandenburger & Nalebuff 1996) or policy (Gold et al. 2004). Even though many researches attempted to improve the model, by rethinking and reinventing it, this research will use the original set of 5 forces, which was developed by Porter and which can be seen in the figure 3 below.

Figure 3 The Porter's five forces model



Source: Based on Porter (1980)

The model assesses the industry structure and its attractiveness by analyzing the effects of each of the five forces. To paraphrase, it evaluates the strength of each force. When the strengths of five forces are minimal then the industry is considered attractive. It also shows to which aspects, forces, of a particular industry, a firm should pay special attention to and what is the structure of this industry.

Before describing each particular force it is wise to present some attributes of the Porter's model. When it was developed it significantly advanced the theory on business strategy. Its advantages are (Grundy 2006):

I. It simplifies micro-economic theory into just five major influences.
II. It shows how competitive rivalry is very much a function of other four forces.
III. It helps to predict the long-term rate of return in a particular industry.
IV. It goes beyond a more simplistic focus on relative market growth rates in determining the industry attractiveness.
V. It helps combine input-output analysis of a specific industry with industry boundaries via entry barriers and substitutes.
VI. It emphasizes the importance of searching for imperfect markets, which offer more national opportunities for superior returns.
VII. It emphasizes the importance of negotiating power and bargaining arrangements in determining relative market attractiveness.
VIII. It focuses managers on the external environment for more than traditional SWOT analysis.

From this non-exhaustive list of advantages, which is presented above, special attention, according to this research, should be paid to the first two items: it simplifies micro-economic theory into just five major influences and it shows how competitive rivalry is very much a function of other four forces. These two elements have a special meaning when investigating industries, which were never assessed and there is little information on how they work, like the piglet feed industry segment investigated in this paper.

The five forces model is a useful tool to make the first assessment of an industry which was never analyzed before. The model limits the scope to four interdependent forces and facilitate the industry analysis. It can create an overall picture of the situation on the market and present the state of dependencies, which can be further analyzed with more sophisticated tools and concepts.

This research is the case, where the analyzed feed industry, in particular piglet feed industry segment, was never assessed before and there are no research findings or documents, which presents the situation in this industry. The piglet feed industry segment was not of a big interest to all the actors active in the feed industry. In such a situation applying the concept of five forces model and assessing the five competitive forces of piglet feed industry segment, in the chosen countries, can deliver a general but a very valuable overview of it. It can be treated as a first step in understanding the piglet feed market mechanism and forces that are shaping it.

Despite advantages the Porter's model has also several disadvantages, among which the most important are (Grundy 2006):

I. It is relatively abstract and highly analytical
II. It fails to link directly to possible management action,
III. It is couched in economic terminology, which may be perceived to be too much jargon from a practicing manager's perspective.

IV. It tends to over-stress macro analysis

The first three disadvantages refer to the manager's negative perception and limited usage of five forces model. This is because the model itself is considered to be highly prescriptive and somewhat rigid (Grundy 2006). Managers, in contrast to academic researchers, tend to like concepts and tools, which can be spelt out in simpler terms and which they can easily apply. This problem can be overcome by model operationalisation. It has to be translated into variables that are self-evident and can be measured. In this research paper an attempt to five forces model operationalisation will be made. The literature study will be conducted it order to find validated variables, which can easily be measured and applied in the analysis.
The fourth disadvantage, saying that the model over-stresses the macro environment is not really a disadvantage in the case of this research. This study focuses on the industry level, in an attempt to understand it, therefore this disadvantage is not considered as the limitation to this research.

According to Porter (1980), the competitive strategy must be derived from a detailed understanding of the forces of the competition. It also ought to be the goal of a company to create such competitive strategies that will have an influence on the forces and will try to change them in the favor of a firm.
As it was mentioned before the model consists of five forces, which will be described in more detail (Porter 1980; Fleisher & Bensoussan 2003; Mintzberg 2003; Gold et al. 2008; Johnson et al. 2008):

1. Threat of New Entrants – refers to the degree to which new competitors can join an industry. Conditions that make it hard to enter and compete in an industry are called entry barriers. This force is defined by several entry barriers:
    - Economies of scale – i.e. lower cost per unit,
    - Product differentiation – i.e. brand identification,
    - Capital requirements – i.e. large initial investments,
    - Cost disadvantages independent of size – i.e. stem from learning curve,
    - Access to supply or distribution channels – i.e. raw materials, shelf space, etc.,
    - Expected retaliation – i.e. incumbents prepare resources to fight with newcomers,
    - Government and legislation – i.e. license requirements;

2. Bargaining Power of Suppliers – refers to the ability of suppliers to influence cost, availability, and quality of input materials to firms within the industry. The supplier group is powerful if:
    - It is concentrated, which means that it is dominated by only few firms,
    - Its product is differentiated or if it has built switching costs,
    - It is not obliged to compete with other products for sale to the industry,
    - It poses realistic threat to integrate forward in the industry,
    - The industry is not an important customer of the supplier group;

3. Bargaining Power of Buyers – refers to the ability of buyers to influence, force the prices down by comparison shopping, or by rising quality expectations. A buyer group is powerful if:

- It is concentrated and purchase large volumes,
- Products purchased are not differentiated, which means easiness to change supplier,
- It earns low profits, which force them to look for cheaper suppliers
- The industry product is not that important to the quality of the buyer's products,
- The buyers pose a realistic threat to integrate backward in the industry,
- The buyers have perfect access to the information about the supplier's products;

4. Threat of Substitutes – refers to a degree, to which products or services of from other industry can satisfy the same needs of the focal industry. It is determined by:
   - Relative price/performance ratio
   - Buyer propensity to substitute

5. Competitive rivalry – refers to an intensity of a competition within an industry. It is often described as a jockeying for position in competitive industry. It is determined by:
   - Industry growth rate – when it is low, then there is a fierce competition between industry members for market share,
   - Competitors balance – when there are many competitors of equal size, the level of competition is higher, as everyone is trying to gain dominance,
   - Fixed costs – if they are high industry is highly rivalrous, as the members seek to cut prices,
   - Exit barriers – when they are high, cost of going out of the business is high, it increases the rivalry,
   - Low differentiation – when products are poorly differentiated, customers can easily change the supplier, switching costs are low, and therefore the only way to compete for industry members is on price

The general analysis, of each particular force from the model, presents the factors that determine its strength. These factors are described on a general level and are common for all the industries. Nevertheless, when studying particular industry, it is wise to make a selection of the factors that are more appropriate to use in the analysis. The next subparagraph will focus on the selection of the factors, for each of the five forces, that will be used to examine the piglet feed industry segment.

Variables-measures for five forces

Although five forces model is widely described in the Industrial Organization Economics and Strategic Management literature, there is little evidence on what kind of measures should be used in order to assess industry structure. There exist hardly any validated measurement scales that are consistent and proved in the literature. The one, which was found in the literature is called *industruct* (Pecotich et al. 1999). It is an instrument designed to measure industry structure based on Porter's five forces model formulation. It is considered to provide an initial check-list for identifying the structural variables that can assess the industry structure.

The study of Pecotich et al. (1999) consisted of several steps, which had a purpose to provide the validated and most appropriate items to be used in the analysis of each of the five forces. At the beginning the literature review was done in order to find the elements that were amendable to measurement and translation into operational terms. The following process of operationalization brought 126 items to measure the five forces. The next step, selection most valuable variables, were done by asking scientific experts to evaluate them. It resulted in reducing the number of items to 55 for all five forces. Subsequently items were assessed by managers and afterwards by the means of statistical analysis. At the end of the research there were 42 elements left, which are supposed to be unambiguous variables, measures for five forces model of industry structure. These elements are presented in the table below.

Table 3 Items for the five forces model of industry structure.

THREAT OF NEW ENTRANTS	
1	In our industry, new competitors have to enter at a highly visible large scale and risk strong reaction from existing firms
2	Established firms in our industry have substantial resources which may be used to prevent the entry of new competitors
3	New firms entering our industry must spend a large amount of capital on risky and unrecoverable up-front advertising and/or for Research and Development (R & D)
4	Retaliation by established firms towards new entrants into our industry is and has been strong
5	New entrants into our industry have to spend heavily to build up their brand names and to overcome existing brand loyalties.
6	New entrant firms in our industry will find it difficult to persuade distribution channels to accept their products
7	New firms entering this industry as small scale operators must accept a considerable cost disadvantage
8	Large capital and/or financial resources are required for entry into our industry
BARGAINING POWER OF SUPPLIERS	
9	The suppliers' product can affect the final quality of this industry's product
10	The suppliers' product is an important input into our industry
11	The products provided by our suppliers and used in our production process cannot be stored for any length of time
12	Suppliers of products to our industry could integrate our production process into their operations
13	The suppliers to our industry can raise their prices easily or threaten to reduce the quality of their products
14	In our industry, supplier or supplier groups are powerful
15	The suppliers of raw and other materials to our industry can and do demand, and gain concessions
16	Firms in our industry are not well informed about their suppliers' demand/sales figures, profitability and cost structures
17	There exist a small number of suppliers who contribute to a large proportion of our industry's inputs
BARGAINING POWER OF BUYERS	
18	In our industry, buyers are highly concentrated (ie. buyers purchase large volumes relative to a firm's sales)
19	The products from our industry are sold to buyers in industries which make low profits
20	The buyers of products from our industry are mainly wholesalers and retailers who can influence the final consumers' purchase decisions
21	In our industry, buyers or buyer groups are powerful
22	The buyers of our industry's products are in a position to demand concessions
23	There are a small number of buyers who form a large proportion of this industry's sales

THREAT OF SUBSTITUTES	
24	New firms entering our industry will face cost disadvantages if they do not control successive stages in the production and/or distribution of this industry's product
25	In our industry, there is considerable pressure from cheaper substitutes
26	It is difficult to find replacements for the suppliers' product in this industry
27	All firms in our industry are aware of the strong competition from substitutes
28	The availability of substitute products limits the potential returns in our industry
29	Substitute products limit the profitability of this industry
30	Our industry's products serve functions which may be easily served by many other products
31	The needs which our industry's products satisfy may be easily satisfied by products from many other sources
32	The products of the industry in which we compete have intrinsic characteristics for which it is difficult to find substitutes
33	Our industry makes products for which there are a large number of substitutes
COMPETITIVE RIVALRY	
34	Firms in our industry compete intensely to hold and/or increase their market share
35	There is a diversity of competitors in our industry (i.e. competitors may be diverse in strategies, origins, personality, and relationships to their parent companies)
36	In our industry, competitive moves from one firm have noticeable effects on other competing firms and thus incite retaliation and counter moves
37	In our industry, advertising battles occur frequently and are highly intense
38	In our industry, price competition is highly intense (i.e. price cuts are quickly and easily matched)
39	Price cutting is a common competitive action in our industry
40	Appropriate terms used to describe competition in our industry are ``warlike,'' bitter,'' or ``cutthroat''
41	In our industry, firms have the resources for vigorous and sustained competitive action and for retaliation against competitors
42	In our industry, foreign firms play an important role in industry competition

Source: Pecotich, et al. (1999)

Based on the findings of Pecotich, et al. (1999), Weerawardena et al. (2006) reduced the number of the variables, from 42 to 25. Five items-variables were assigned to each of the five forces, which taken together explain the dynamics of competitive rivalry in an industry via key structural characteristics (Weerawardena et al. 2006). Although the latter study confirmed the findings of the former one, this research will make use of the list of 42 variables found by Pecotich et al. (1999) as it presents broader scope of variables and allows selecting the most appropriate for a certain type of the industry.

Operationalization

The selection of variables and corresponding indicators for all five forces is presented in the tables below. The original list of Pecotich et al. (1999) has been thoroughly analyzed and for the purpose of the present research it was summarized from original 42 items into a total of 15 items. Five other items have been added to the list, which are the variables 9 and 11 from the Bargaining power of buyer's force, 15 and 16 from the Threat of substitutes' force, and 19 from Competitive rivalry's force. Those five additional items, which were found in the study of Carpenter and Sanders (2009), together with the other 15, form a list of 20 items, which are allocated over the respective five forces. The

description with the reasoning for creating the variables for each force is presented underneath the tables.

Threat of new entrants

Table 4 Indicators and variables for the threat of new entrants force

THREAT OF NEW ENTRANTS		
VARIABLE		INDICATOR
1	Economies of scale	Small scale entrants face considerable cost disadvantages
2	Capital requirements	Large capital and/or financial resources are required for entry (especially for Research and Development – R&D)
3	Expected retaliation	New entrants risk strong reaction from incumbents
4	Access to supply /distribution channels	New entrants will find it difficult to persuade distribution channels to accept their products

The *economies of scale* variable in the case of piglet feed industry might have an impact on the threat of new entrants. Piglet feed is a specialty feed product and it has to be of a high quality, which might imply high production costs. Therefore small scale entrants can face cost disadvantages. That is the reason why it is wise to estimate the effect of economies of scale on the force.

Capital requirements variable checks whether large financial resources are required to enter into the industry. As mentioned before piglet feed products are of high quality and require special ingredient formulation. Therefore it should be assessed whether new entrants have to spend much on achieving the right quality and finding unique ingredient formulation, which is connected with the spending on R&D.

Expected retaliation is the common factor that should be taken into account regarding the type of an industry. When it is high it diminishes the attractiveness of an industry.

Access to distribution channels indicates to the easiness to position products on the market by new entrants. Feed products are sold through various sales channels and it has to be analyzed whether new entrants can easily reach and use these channels.

Bargaining power of suppliers

Table 5 Indicators and variables for the bargaining power of suppliers force

BARGAINING POWER OF SUPPLIERS		
VARIABLE		INDICATOR
5	Power	Suppliers are powerful
6	Power (price/quality)	Suppliers can raise prices or reduce quality
7	Input	Small number of suppliers contribute a large proportion of inputs
8	Forward integration	Suppliers could integrate our production into their operations

To the *power* variable two indicators are assigned. First one is the general assessment of the suppliers' power, while the second one determines if the suppliers' can change the prices or reduce the quality of their products independently. This has a special application in the piglet feed industry. The suppliers' products (raw agricultural materials) are important inputs in feed industry. Therefore

when the supplier has a big power in changing prices or quality, it can influence the profit potential and quality of feed products respectively.

Input variable evaluates if there are suppliers that control large proportion of inputs to the industry. If this is the case then there is the threat that suppliers can execute power towards the industry.

Forward integration analyzes if suppliers can take over activities of their buyers. It seems to be important in the feed industry, as the raw materials suppliers can start their production and become a direct competitor.

Bargaining power of buyers

Table 6 Indicators and variables for the bargaining power of buyers force

BARGAINING POWER OF BUYERS		
VARIABLE		INDICATOR
9	Buyers' awareness	Buyers are well informed about different products attributes
10	Importance of volume	Small number of buyers form a large proportion of sales
11	Price sensitivity	Buyers are price sensitive
12	Type of buyers	Buyers of products are other market actors, which can influence the final consumers' purchase decision

Buyers' awareness variable informs if the buyers are well informed about different products attributes. If they are, they become more powerful.

Importance of volume checks whether a large proportion of sales comes from a small number of buyers. If this is the case, the buyers may have a power over piglet feed producers.

Although *price sensitivity* is not included in the study of Pecotich (1999) it is an important variable according to Carpenter & Sanders (2009). It says whether changes in prices can influence the buyers' purchase decision. Therefore it will be used in this study.

Type of buyers' variable analyzes whether the actors in between piglet feed producers and final customers can influence the final consumers' purchase decision. If they can, it is considered as a threat to the industry.

Threat of substitutes

Table 7 Indicators and variables for the threat of substitutes force

THREAT OF SUBSTITUTES		
VARIABLE		INDICATOR
13	Variety of substitutes	The industry makes products for which there are a large number of substitutes
14	Substitute competition	There is a strong competition from substitutes
15	Price-performance ratio	There are substitute with a better price-performance ratio
16	Buyer inclination to substitute	Buyers easily switch to new products-substitutes

Variety of substitute's variable assesses if there are many other substitute products (i.e. feeds) or processes (i.e. feeding programs) that can compete with the piglet feed.

Competition variable evaluates if there is strong competition from substitutes of piglet feed and whether they compete on the price level.

Price-performance ratio is not included in the study Pecotich (1999), but in variety of studies (Carpenter & Sanders 2009) it is considered as a crucial element of the analysis of the threat of substitute force. Some products might become very interesting substitutes because they offer better performance for a reasonable price.

Also buyer inclination to substitute variable is not included in the study of Pecotich (1999) but can influence threat of substitutes (Carpenter & Sanders 2009). Simply, if buyers are not willing to switch to new products, then the substitutes have no power to influence the industry attractiveness.

Rivalry among existing competitors

Table 8 Indicators and variables for the rivalry among existing competitors force

COMPETITIVE RIVALRY		
VARIABLE		INDICATOR
17	Competitiveness	Firms in our industry compete intensely to hold and/or increase their market share
18	Price competition	Price competition is highly intense
19	Brand identity	Brand identity is very strong
20	Competitor's country of origin	Foreign firms play an important role in the industry competition

Competitiveness variable analyzes the intensity of the competition in relation to market share. Firms can compete in order to hold or increase their market share.

Important aspect of rivalry is the *price competition*, because it influences the industry profitability.

The level of *brand identity* is also an important variable. If it is strong then it is hard to convince buyer to switch to other products. In case of piglet feed it might be really hard to convince final customers-farmers, to change the supplier of the feed.

The last but not least variable evaluates the competitor's country of origin and checks whether foreign firms play an important role in the industry, if they stimulate the competition. If this is the case then the competition within the industry is stronger.

2.2.2 Key Success Factors (KSFs)

A firm performs well when it chooses a strategy that fits the business environment and compete in settings where the prerequisites for success, so-called key success factors, match the firm's distinctive competences or strengths (Vasconcellos & Hambrick 1989).

Key success factor (KSF), often called critical success factor, is defined as: *key asset or requisite skill that all firms in an industry must possess in order to be viable competitor* (Carpenter & Sanders 2009).

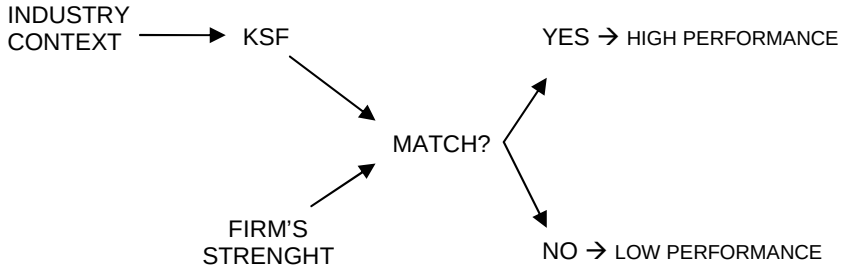
The KSFs can be classified in four major areas, types: (Rockart 1979):

1. Industry – resulting from industry's specific characteristics, in this case piglet feed industry
2. Strategy – resulting from the competitive strategy and industry position
3. Environmental – resulting from environmental factors, i.e. political, economic, technological, etc.

4. Temporal – resulting from internal organizational needs and changes

This research will focus on industry KSFs, which according to the Industrial Organization literature are dictated by the characteristics of an industry. If a company will develop its strengths according to industry KSFs it will perform better and its competitive position will be stronger. The figure below shows this state of dependence.

Figure 4 A model of the origins and implications of 'key success factors'



Source: Based on Vasconcellos & Hambrick (1989)

There is hardly any validated method, by which it would be possible to identify KSFs in a particular industry. The concept is very subjective and KSFs differs among industries. Nevertheless a study made by Vasconcellos & Hambrick (1989) brought up a list of potential key success factors that can be used when trying to identify the KSFs in the manufacturing industry. This study was done for the mature industrial-product sector. Its list of factors was created by reviewing the management literature and finding the most commonly mentioned KSFs concerning the aspect of a manufacturing industry (Levitt 1967; Lilien 1979; Hambrick 1983a; Hambrick 1983b). They arrived at the following list of 17 important industry attributes (the detailed description from Vasconcellos & Hambrick (1989) is presented in the appendix 1):

1. Image
2. Technical knowledge of the sales force
3. Marketing knowledge of the sales force
4. Advertising and sales promotion
5. Product research and development (R&D)
6. Service
7. Process research
8. Firm size
9. Customer financing
10. Distribution
11. Location of manufacturing facilities
12. Technical skills of manufacturing workforce
13. Quality control
14. Production management

15. Purchasing
16. Labor relations
17. Technical sophistication of the equipment

Operationalization

In order to have KSFs, which can be later compared between investigated countries, this research will make the use of, mentioned above, list of industry factors. Nevertheless, the list has to be adapted to the case of piglet feed industry. Therefore some of the industry factors were omitted and some aggregated.

The factors (with the number from the list above), which are not in the list that will be used in this research, are:

- Technical knowledge of the sales force (2), Process research (7), Technical skills of manufacturing force, Production management (14) and Technical sophistication of the equipment (17) – were summarize into one industry attribute of 'know-how', which will be applied in this paper. It covers all the technical and technological aspects of production and sales of the piglet feed,
- Customer financing (9) – the piglet feed products are not of so high value like the industrial equipment, which was the object of the study of Vasconcellos & Hambrick (1989). Therefore the issue of financing the customers in order to increase their purchasing power is not a practice in the piglet feed industry.
- Labour relations (16) – the study of Vasconcellos & Hambrick (1989) was done for the industry equipment, which producing requires lot of time and huge amounts of labour hours. This is not the case of piglet feed products, therefore labour relations has a relatively small impact on the industry as a whole and will not be taken into account.

To conclude on the potential industry factors that will be used in this research paper a following table, with the factors related to piglet feed industry, is presented below:

Table 9 Potential piglet feed industry success factors

ATTRIBUTE	DESCRIPTION – relation to piglet feed industry
Image	the importance of the brand and company reputation, which should create a positive attitude in the minds of customers of piglet feed products
Marketing knowledge of the sales force	ability to persuade and convince customers to buy piglet feed products, knowing the needs and values of customers
Advertising and sales promotion	being present on fairs, in magazines, etc. Promote piglet feed brands
Product research and development (R&D)	constantly modifying, improving the piglet feed products, adding new functions (i.e. problem solving feed) and developing new kind of feeds
Service	ability to advice customers on how to use piglet feed products, support in the area of piglet production (i.e. what feeding programs to use, how to solve the disease problems, etc.)
Firm size	to exploit economies of scale, having lower cost per unit of piglet feed

Distribution	ability to maintain low distribution costs and assure that the deliveries are made on time with the right volumes
Location of manufacturing facilities	closeness to market; to transportation means; or to raw materials and labor
Quality control	ability to maintain constant, reliable, high quality level of feed products
Purchasing	ability to have access to low-cost or reliable sources of inputs, i.e. raw materials needed to produce piglet feed
Know-how	technological knowledge needed to be able to produce piglet feed

Source: Based on Vasconcellos & Hambrick (1989)

The following empirical study will try to find the factors that are most important in the piglet feed industry in different EU countries.

KSFs are used by firms in order to focus on a number of factors, which help define its success. Understanding the KSFs together with the industry structure and dynamics can provide an overview of the organization's business environment. Therefore the next subchapter will focus on the industry dynamics, which uncovers the trends and developments in the industry.

2.3 INDUSTRY DYNAMICS

The previous chapter presented the industry structure analysis using five competitive forces and KSFs. This analysis presents the industry at a certain point of time, however structure's change over time, which implies its dynamic character. Therefore assessing dynamics will deliver necessary information about future trends and developments in the industry and will help in preparing right competitive strategies. Understanding the concept of industry evolution is important, because it requires changes in the strategic behavior of the firm, which usually costs more when the need for the change become more obvious (Porter 1980). Additionally, a firm which sooner adapts to industry changes has higher benefits than other firms, which do it later.

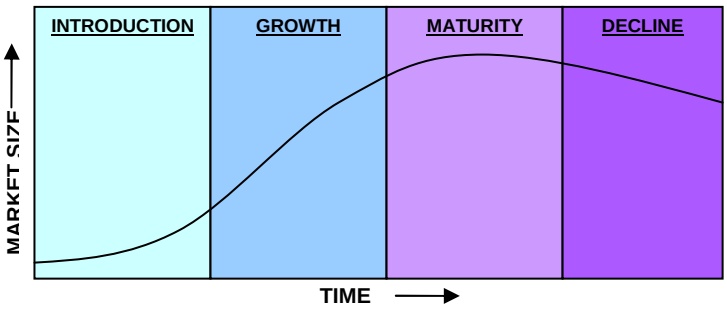
One can ask a question; where do new industries come from? A new industry emerges when new products or services are developed that satisfy customers' needs, which could not be satisfied with existing products or services (Carpenter & Sanders 2009). As it emerges it evolves over time and passes few stages of its life cycle and changes over time. These stages are similar to the ones from the marketing concept of product life-cycle (Kotler 1965; Levitt 1965; Cox 1967; Day 1981), which can be treated as the 'grandfather' of concepts predicting the probable course of industry evolution (Porter 1980). The changes of the industry's life can be evaluated using various tools and concepts.

2.3.1 Industry life-cycle model

Industry life-cycle is a model, which describes the evolution from the introduction through growth, maturity to decline stage. These stages are defined by the market size over time. It follows an S-

shaped curve, which can be seen from the figure below. Each stage of the model has implications for the five forces.

Figure 5 The industry life-cycle



Source: Porter (1980)

Some authors argue (Klepper 1997; McGahan 2000) that the concept of industry life-cycle has drawbacks as it presents only one pattern of the evolution that will take place. They do have right, as the industries vary and some of them might differ in the length of various stages. It is also said that there is no underlying rationale for why the competitive changes associated with the life cycle might happen (Wit & Meyer 2004).

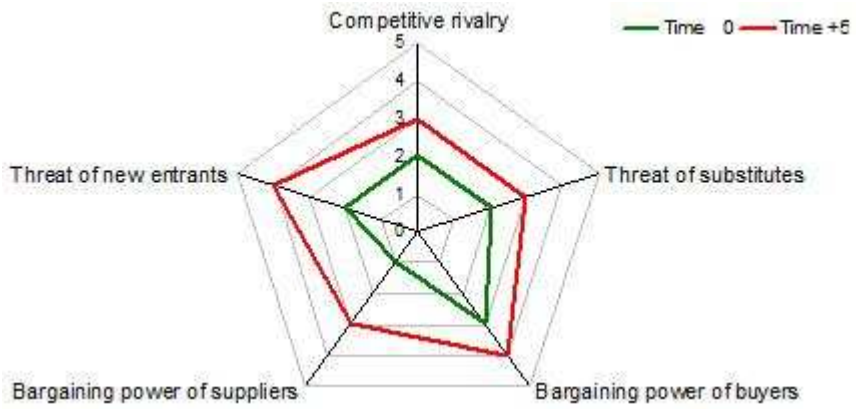
As the industry life-cycle can have so many different paths, its pattern does not always hold. Therefore in this research paper this concept will not be used although it presents the most common pattern of industry evolution.

A useful concept to assess the dynamics of the industry is a comparative industry structure analysis, which is primarily based on the findings of the five forces model.

2.3.2 Comparative industry structure analysis

This analysis allows measuring the dynamics of the industry. It is done by comparing the five forces from the Porter's five forces model, over time, by presenting the results on a 'radar plot' (Lerville-Anger et al. 2001). The power of the forces is summarized on five axes. The power increases as the axes go outside. When the power of each force is identified by the point on the axe, they all can be connected. The area that will be enclosed by the lines will represent the power of five forces taken together. If the analysis will be done for two points of time, i.e. at the moment of analysis and in five years, the trends in the competitive forces can be recognized and can help in identification of the future industry developments. The example of such a plot can be found in the figure below.

Figure 6 Comparative industry structure analysis



Source: Based on Lerville-Anger et al. (2001)

2.4 COMPETITIVE STRATEGIES

Being successful on the market and meeting long-term objectives requires a constant search for ways to align to the current and potential situation in the environment. It also means gaining competitive advantage over competitors, which operate in the same business area. The basic assumption for a firm is to *attempt to achieve a position of a competitive advantage over their rivals when serving target customers* (Barney 1991). In other words *gaining a competitive advantage by a firm means creating a value in a way that its rivals cannot* (Carpenter & Sanders 2009). This implies that companies need to formulate competitive strategies that will guide them on how and on what bases they can gain and sustain competitive advantage.

There are various bases on which a company can gain and sustain a competitive advantage. Some of the most important of them are (Wit & Meyer 2004):

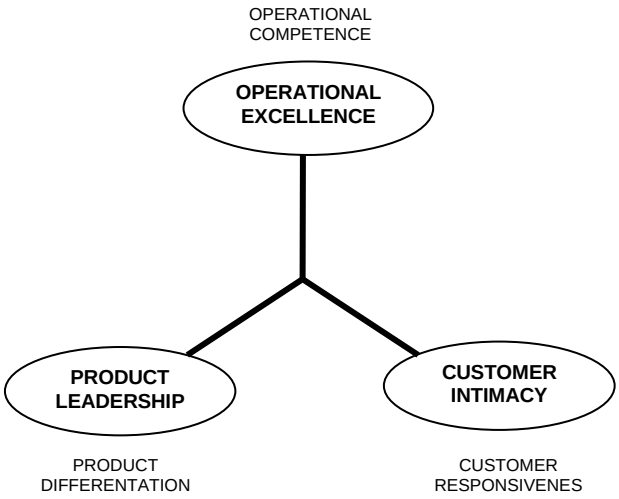
- **Price** – the ability of a company to charge a lower price comparing to competitors is the most straightforward advantage an organization can have. Customers when purchasing usually look for the cheapest products from a sub-group of comparable goods. Gaining this advantage means having low cost product offering, as in the long run this is the only way to operate at a lower price level.
- **Features** – the ability of a firm to differentiate its products comparing to the competitors. The ways to differentiate are various: changing size, taste, packaging, colour, design, add function, etc., everything what will make the product being perceived different. In order to be able to differentiate organization should have its resources and activity systems well developed.
- **Bundling** – the ability to differentiate the products by selling a package of goods 'wrapped together'. Firms by doing it can sell a customer the family of products that are related to each other and which fit well together. Customer might appreciate that as it gives the convenience of 'one stop shopping' and the assurance of product compatibility.
- **Quality** – the ability of a firm to make better 'the same' products that the others do. Customers appreciate the superior quality and are often willing to pay a premium price for such product.

- **Availability** – the ability of an organization to have the product at the right place, at the right moment and in the right way. Having good distribution of products can create a competitive advantage for a firm, as customers have always an access to the goods. This base is also concerned with the efficient distribution of products.
- **Image** – the ability to attract the customers by the positive image of a firm and its brands. Customers are attracted to brands, which communicate specific values for them. The brand and image might convince uninformed, about product features, customers to buy the products. The image of a firm in terms of standing (i.e. global leader) and reputation (i.e. high quality) can create a perception that this firm is trusted.
- **Relations** – the ability to maintain the direct relations with customers, who like to be treated special, to value trust and the convenience of having long-term relations. This can create a competitive advantage for a firm as it will have a loyal and satisfied group of customers.

As it can be seen from the desriptions given above there is a variety of bases on which generic competitive strategies can be built. Some researches (Baden-Fuller & Stopford 1994) argue that there is no such thing as a generic competitive strategy that follow from one or two broad categories of competitive advantage. They say that there is a myriad of possibilities and ways, in which organizations can develop a competitive advantage, and which does not have to fit into fixed categories. Baden-Fuller and Stopford argue that searching a new type of gaining competitive advantage might be the best way for achieving a unique position in a business.
Other studies (Treacy & Wiersema 1993) argue that a firm should have a defined competitive strategy, which will guide it on how to behave in the business environment. Having defined strategy allows organization to follow a certain path, which should help them gain competitive advantage.

The literature presents competitive strategies that companies can apply. They are built on the bases mentioned above. First Porter's generic competitive strategies, including three different strategies: cost leadership, differentiation and focus strategy are most commonly known and mentioned in the strategic management literature. Second, the strategies based on the principle that a competitive advantage should be gained by providing the customers what they want, need, better or more effectively than competitors (Faulkner & Bowman 1995), are often referred to. Third alternative, which will be used in this paper, says that there are actually three generic competitive strategies; operational excellence, product leadership, customer intimacy (see figure 7 below) (Treacy & Wiersema 1995).

Figure 7 Three generic competitive strategies



Source: Based on Treacy and Wiersema (1995)

Treacy and Wiersema (1995) describe the three competitive strategies as follows:

1. Operational excellence – the focus is on making better operations, efficiency, and supply chain management. Delivering a combination of reasonable quality at a low price,
2. Product leadership – the focus is on high quality, innovation, development, design, brand marketing and time-to-market. Offering the client the best product,
3. Customer intimacy – the focus is on customer relationships, tailored products, individual customers, delivering products on time above customer expectations;

These three dimensions of generic value disciplines are summarized in the table 10 below. This information will be used to answer the main research question. The attributes will help to define the final choice of strategy that the firm is recommended to apply.

Table 10 Attributes of three generic strategies based on Treacy and Wiersema

	OPERATIONAL EXCELLENCE	PRODUCT LEADERSHIP	CUSTOMER INTIMACY
VALUE PROPOSITION	– Best total cost	– Best product	– Best total solution
GOLDEN RULE	– Variety kills efficiency	– Cannibalize your success with breakthroughs	– Solve the client's broader problem
CORE PROCESSES	– End-to-end product delivery – Customer service cycle	– Innovation – Commercialization – Market exploitation	– Client acquisition & development – Solution development
IMPROVEMENT LEVERS	– Process redesign – Continuous improvement	– Product technology – R&D cycle time	– Problem expertise – Service customization
MAJOR IMPROVEMENT CHALLENGES	– Shift to new asset base	– Jump to new technology	– Total change in solution paradigm

Source: (Kluin 2004)

The three strategies of Treacy and Wiersema (1995) can be matched with the possible bases of gaining competitive advantage proposed by Wit and Meyer (2004) (see table 11), which were presented earlier in this chapter.

Table 11 Treacy and Wiersema's competitive strategies vs. bases for gaining competitive advantage

COMPETITIVE STRATEGIES	BASES FOR COMPETITIVE STRATEGIES
Operational excellence	Price, Availability
Product leadership	Features, Quality, Image
Customer intimacy	Bundling, Relations

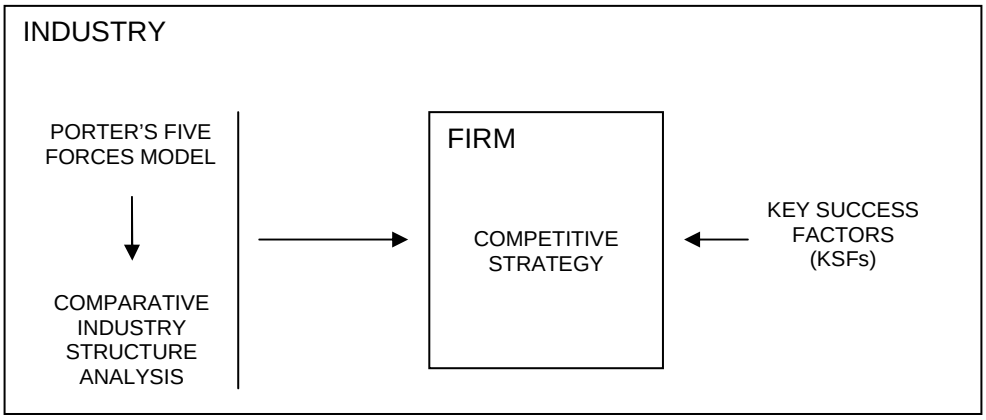
Operational excellence is related to price and availability bases, because it covers the aspects of efficient distribution of the products at a low cost.
Product leadership corresponds to such bases as features, quality and image, which deal with delivering the best product to the customers.
Customer intimacy is matched with the bundling and relations bases. Building strategies on these bases aims at providing best total solution for the customer.

A firm needs to make a decision, in which dimension it wants to operate. 'Playing an average game' will not help in becoming a market leader, as company will not create a breakthrough in any dimension to reach high levels of performance. Therefore it is very important to decide, which strategy should be followed.
Treacy and Wiersema (1995) also argue that a company can not allow slipping the performance in the other dimensions so much that it weakens the attractiveness of a company's unmatched value. Therefore they suggest that a firm should maintain threshold standards on other strategy dimensions.

2.5 THEORETICAL FRAMEWORK

Each of the models and concepts described: (1) Porter's five forces model (2) Comparative industry structure analysis and (3) Key Success Factors, is a useful tool for assessing an industry. The five forces model is useful in evaluating the competitive business environment; the comparative industry structure analysis reveals the evolution and the changes that are taking place. The key success factors analysis uncovers the key assets or requisite skills that a firm in an industry should possess in order to be a viable competitor (Luo 1999). All this taken together with the theory on competitive advantage can help organizations in building their competitive strategies, and guide them on what bases they should do it. Normally, when building a strategy, the internal resources potential and constraints that a firm has are supposed to be taken into account. Nevertheless, this research prioritize the adaptation of the firm to the market, so called 'outside-in' approach The figure below presents the general theoretical framework of this research paper that will be used in the empirical part.

Figure 8 General theoretical framework



As it can be seen from the figure above the competitive strategy of a firm can be built using Porter's five forces model together with comparative industry structure analysis and key success factors concept.

Porter's model assesses the strength of each of the five forces that shape the industry. According to Porter, if the strength of the forces is high, then the competition in the industry is fierce, which forces companies to compete on price. (1) The threat of entry determines the possibility that new competitors will capture away the market, which is created over the years, passing value to buyers in the form of low prices or dissipating it by raising the costs of competition. (2) Powerful buyers can retain the most of the value, leaving the industry with low returns. (3) Powerful suppliers can also capture majority of value created within the industry, especially via the high prices. (4) Substitutes can determine the price ceiling that buyers are willing to pay for industry's products. Finally (5) rivalry, determines whether firms will compete fiercely for the value created in the industry. Strong competition may result in passing the value to buyers in the form of low prices, which is similar to the effects of the threat of new entrants, or strong buyers.

Therefore, it can be concluded that if the strength of the forces is high, most probably firms will compete on the price level, which implies the choice of an operational excellence strategy from the classification of Treacy and Wiersema. It also indicates that an industry is not attractive. If the strength of the forces is low or medium, the industry is considered as attractive. Then firms may choose to compete on all three bases: best total cost, best product or best solution. Nevertheless Porter suggests that in this case companies should preferably apply strategies, which can better differentiate them from the competitors. Therefore, using the generic strategy classification of Treacy and Wiersema, it is suggested that companies can apply one of the two strategies: product leadership or customer intimacy.

The KSFs concept can also help in identifying the appropriate competitive strategies a firm can apply. In this research there are 11 KSFs (par. 2.2.2) that will be used and applied in the empirical research. They can be classified into groups, and connected with Treacy and Wiesema's competitive strategies classification (par. 2.4). Assigning factors groupings to strategies is done according the characteristics

of their competitive strategies. The table below presents the KSFs assigned to the 3 competitive strategies.

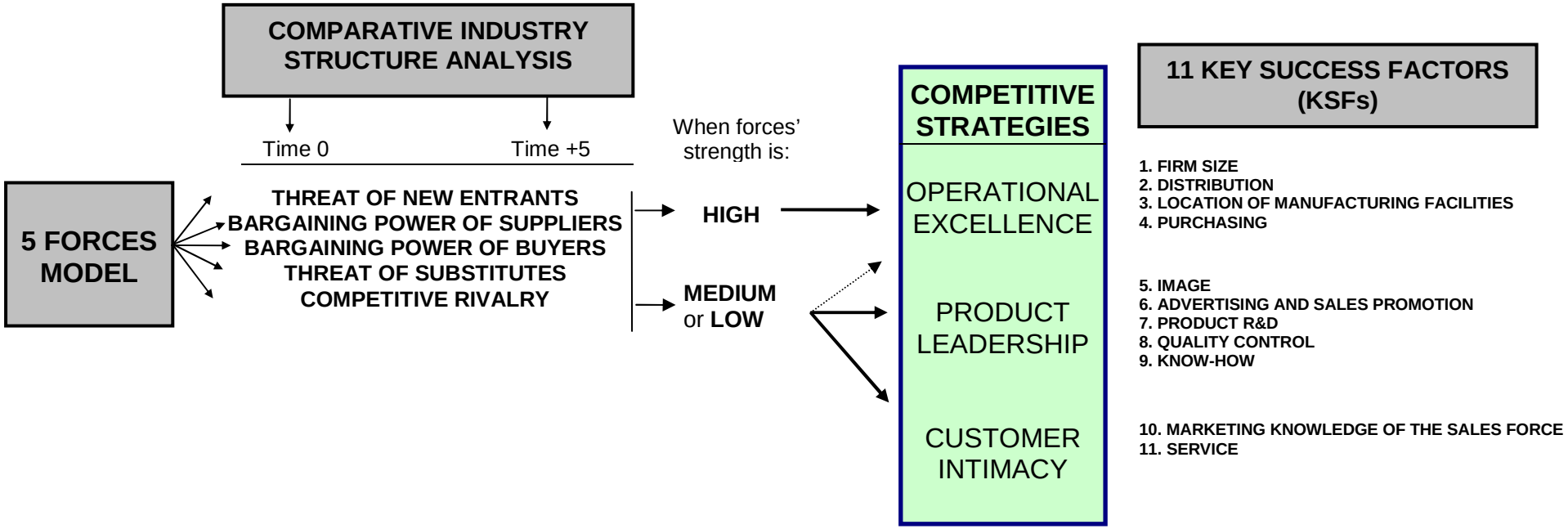
Table 12 KSFs vs. Competitive strategies

KEY SUCCESS FACTORS		COMPETITIVE STRATEGIES	
A	Firm size, Distribution, Location of manufacturing facilities, Purchasing	**A**	Operational excellence
B	Image, Advertising and sales promotion, Product R&D, Quality control, Know-how	**B**	Product leadership
C	Marketing knowledge of the sales force, Service	**C**	Customer intimacy

KSFs from group A represent factors, which have an influence on the production costs. They match the strategy of operational excellence focusing on the best total cost.
Factors from group B relates to product features and its promotion. They match the strategy of product leadership focusing on the best product.
Factors from group C stand for the relationship with the firm's customers and match the third strategy of customer intimacy focusing on the best total solution.

The detailed theoretical framework with the relation of mentioned concepts to different types of competitive strategies is presented in the figure 9 below.

Figure 9 Detailed theoretical framework



This theoretical framework will be used in order to answer the main research question of this research.

2.6 CONCLUSION

To conclude on the theoretical background the answers to first two research questions will be presented.

- **RQ1.** What tools and concepts from Industrial Organization and Strategic Management literature may constitute a framework of industry analysis (according to its characteristics)?

  - The tools and concepts that are used in this study are: (1) Porter's five forces model, (2) Key Success Factors (KSFs) and (3) Comparative industry structure analysis. The framework, based on these concepts, which is used in the empirical part, can be seen in the Figure 9 (see par. 2.5).

- **RQ2.** What are, according to scientific literature on Strategic Management, the possible competitive strategies to apply, according to the industry structure and its dynamics, in order to achieve competitive advantage over rivals?

  - Literature provides numerous competitive strategy classifications that can be applied. This research has chosen the strategy classification of Treacy and Wiersema (1995), who distinguished three main generic competitive strategies. They are: (1) Operational excellence, (2) Product leadership and (3) Customer intimacy.

3. METHODOLOGY

The previous chapter presented the literature review that was done in order to find proper tools and concepts, which can be applied in the empirical study. It was concluded that three management tools will be used: Porter's five forces model, comparative industry structure analysis and the Key Success Factors (KSFs).

This chapter focuses on the methodology, which will be used in the empirical part of this research. It starts with the introduction of the investigated problem, which is followed by the description of the research strategy-case study design, the explanation of data analysis and the discussion of the reliability and validity of the research. It ends providing the answers to the third research question, which is attached to the methodology part of the research. This question is:

RQ3. What data sources and data collection method will be used in the empirical part of the research?

3.1 INTRODUCTION

The problem of this research is to find the appropriate competitive strategies that a company can apply in the piglet feed industry segment, in 8 different EU countries. These countries are: Belgium, Denmark, The Netherlands, Germany, Ireland, Poland, Hungary, and Czech Republic. The choice of competitive strategy will be based on the characteristics of the piglet feed industry and therefore the industry structure and dynamics will be analyzed in each country. In order to do so, the situation in each of mentioned countries has to be assessed.

The research strategy that will be used in the empirical section is the case study. The reason why the case study is chosen was explained already in the first chapter, but in short the motive was that in order to answer the main research question the industry situation has to be analyzed, as it will a base for the competitive strategy choice. This means that overall situation in the piglet feed industry segment in each country should be taken into account, which covers many different aspects, i.e. pig and feed production, competition, buyers, suppliers, etc.. Since the study is done for 8 different countries, which will be separate units of analysis, the variant that will be applied is a comparative case study. The initial step will be examination of the separate cases. It is important to analyze and describe cases according to an established pattern (Verschuren & Doorewaard 2005). It will allow comparing the cases in the next step, which intends to find similarities and differences between diverse cases.

3.2 CASE STUDY DESIGN

The case study tests the theoretical framework in practice and tries to find the answer to the main research question. Therefore several steps have been taken. First, the sources of data are identified and the strategy for data collection explained. Secondly, the data analysis process is described.

3.2.1 Data collection

There are three different sources of data that are used for the purpose of the empirical research: documents and media, and people (Verschuren & Doorewaard 2005). The first two sources are used in the first part of the results and analysis in order to present the relations between the piglet feed industry and the number of farms and animals by the size of the breeding sow herd, in each country. The third source of information, people, delivered the detailed data on the piglet feed industry in particular, in each country.

The data from documents and media that introduces and presents the sow population, the number of farms and animals by the size of the breeding sow herd and the volume of the piglet feed production in each country, is web based. This general data was gathered from the documents and media that were found on the websites of two European institutions: (1) Eurostat, the statistical arm of the European Commission and (2) European Feed Manufacturer's Federation (FEFAC). The advantage of using these two sources is that each of them offers the data, which is harmonized and can be compared between the countries, as it was collected using the same statistical methods.

Data, which provided the main input to answer the main research question, was gathered from people, who are active members of the piglet feed industry. The general data about piglet feed industry segment was gathered on the stated 8 EU countries. The main source were the employees of Trouw Nutrition International (TNI) company. The TNI employees in each country were asked to initially fill out the pre-interview questionnaire and were interviewed on a later stage according the case study protocol.

The aim of the case study protocol is to increase the reliability and validity of the research. It consists of two documents: (1) the initial, pre-interview questionnaire and (2) the the interview document. It can be found in the **appendix 2**.

The sequence of actions that were taken, together with the time schedule, is presented in the table below.

Table 13 Case study schedule

N.	STEP	Start date	End date
1.	Introducing the project to TNI employees by TNI managers	approx. 11.08	--
2.	Sending / receiving the pre-interview questionnaire	17.12.2008	31.01.2009
3.	Sending interview document	12.02.2009	--
4.	Interviews	23.02.2009	10.03.2009

There were four steps taken to complete the case study data collection: (1) around November 2008, the employees representing 8 EU countries were contacted and informed about the project; (2) the semi-structured, pre-interview questionnaire was sent to them with the request to fill it in and return by the 31st January 2008. When all the questionnaires were returned, (3) the structured interview document was created and sent (approximately one working week before the interview). (4) Interviews started on 23rd February 2009 and finished o 10th March 2009.

The list of people, who could help in the research, was delivered by TNI and included employees, who directly deal with the piglet feed products and have the best overview of the situation in their countries. In order to gather more objective data, about each country situation, people from other feed companies in various countries were contacted and asked for help. Nevertheless this research relies mainly on the information gathered from TNI employees in mentioned countries. The reason is that this source was dependable, because TNI provided and secured the access to its employees. Additionally there was a risk that the other companies could refuse to take part in the research.

Pre-interview questionnaire

The goal of the initial, pre-interview questionnaire was to provide general information about the situation on the piglet feed market. Due to the lack of data on the present market structure, the employees of TNI in different EU countries were asked to present the basic information about the market's situation. The questionnaire was semi-structured, which consisted of closed-ended, multiple choice and also open-ended questions. It provided the general data on the piglet feed market and also the interviewee's opinions on various issues. For gathering information about different aspects of the market questions were asked about current trends in pig and piglet production, as well as piglet feed production, farm structure and market characteristics (i.e. competition, competitors, buyers, suppliers, substitutes). The answers to the questionnaire provided an overall picture of the industry in 8 EU countries. Not all the answers to the questions could be used in this research, for some data was confidential, available only for TNI. The original version of the initial questionnaire can be found in the appendix 2 – case study protocol. Below the summary of the questions from the questionnaire is presented.

Questions 1 to 3 and 5 provided the data on the farm structure depending on the sow number, which presents the structure of the piglet market and shows on what size of farms piglet production is concentrated.

Questions 6, 7 and 9 offered the data on the competition aspect, which includes the facts on the competitors that are active in each of the investigated countries and will be presented in the first part of analysis for each country.

Questions from 10 to 14, from 16 to 25 and 29 to 31 are used as a support in the analysis of the results from the interviews, as they cover similar aspects and deliver more qualitative data, which can be used in describing the results of the interviews. They provide so-called triangulation of information and reduce the subjectivity of information.

Questions that are excluded from the analysis in this research are: 4, 8, 15, 26 to 28, and 32 to 34 – which provide confidential information, which was of interest to TNI and therefore can not be available for the public.

Interview document and interview

According to the schedule (see table 13), after receiving the filled out semi-structured questionnaires, the selected employees of TNI have been contacted to be interviewed. The purpose of the interviews was to collect more structured data about the piglet feed industry segment, which could be further

analyzed and compared between countries. The base for the interviews was in a form of a structured document, which the employees received approximately a week before the planned interview. This document can be found in the appendix 2 – Case study protocol. Some of the interviews were conducted face-to-face (F-F) and some were telephone interviews (Phone). The documents consisted of two parts of questions. The first part concerned the characteristics of the market situation according to the Porter's five forces model. For each of the five forces a set of four questions – statements were prepared. The reason why statements were used, and not open questions, was to make the answers comparable. The interviewees were asked to rate, give an estimation of the relevance of each statement in relation to the current and expected future situation (timeframe 5 years) in a certain country. Each statement was rated on a 5 point Likert scale, where '1' stood for 'To no extent' and '5' 'To a very great extent'.
In line with the list of 11 possible key success factors (see par. 2.2.2), the second part consisted of 11 possible success factors, that might be important in the piglet feed industry. The interviewees were asked to choose five factors which he or she perceived as relevant and rank them from the most important (1) to the least important (5). In case any other factors were known as being relevant, the interviewees were asked to name them.

Due to the fact that this research was done only for 8 countries, which represent just a part of the whole EU, two additional persons were interviewed who could help in discovering trends and developments in the whole EU pig production. These were people, experts from different parts of the pig and piglet feed industry, in particular: (1) the Dutch Agricultural Economics Institute – LEI, (2) Hendrix UTD, the compound feed company. The interviews conducted had a purpose to discuss the possible scenarios for pig production with the focus on the piglet production in EU, which indicates where the future, potential markets for piglet feed might be located.

To conclude, 11 interviews were conducted in total. Some of these interviews were face-to-face (F-F) and some were telephone interviews (Phone).
Nine of the interviewed persons represented 8 EU countries: Belgium (B), Denmark (DK), The Netherlands (NL), Germany (D), Ireland (IRL), Poland (PL), Hungary (HU), and Czech Republic (CZ). These interviews had a goal to gather the structured information about piglet feed market in each of the mentioned country.
Two other interviews dealt with the general situation in European Union (EU) pig production and the possible trends and developments that might occur in the coming years. They were conducted with the experts in the field of pig production. Due to the lack of time and the fact that the possible developments in pig production are not the objective of this research, only Dutch experts were asked for participation. But, in order to have a broader view of the situation, those experts came from different parts of the 'pig' industry, which was already mentioned earlier in this paragraph.

The interview schedule together with the indicated type of the interview can be seen in the table below.

Table 14 Interview schedule

N	INTERVIEWEE	FUNCTION	COUNTRY	DATE	TYPE	DURATION
INTERVIEWS CONCERNING PIGLET FEED MARKETS						
1	**1**	-	IRL	23.02.09	Phone	55 min
2	**2**	-	CZ	23.02.09	Phone	60 min
3	**3**	-	B	23.02.09	F-F	70 min
4	**4**	-	NL	23.02.09	F-F	70 min
5	**5**	-	HU	25.02.09	Phone	55 min
6	**6**	-	PL	25.02.09	Phone	45 min
7	**7**	-	DK, D	06.03.09	F-F	80 min
8	**8**	-	DK, D	06.03.09	F-F	80 min
9	**9**	-	DK, D	06.03.09	F-F	80 min
INTERVIEWS CONCERNING EU PIG PRODUCTION TRENDS						
10	Robert Hoste	LEI	EU	05.03.09	F-F	70 min
11	**11**	-	EU	06.03.09	F-F	80 min

Due to the confidentiality matters the interviewees' personal details (people interviewed concerning piglet feed markets) are not available for the reader ad therefore they were coded into: Interviewee 1 till 9. The table with all the details is available only for TNI and supervisors of this research (appendix 4)

3.2.2 Data analysis

Information gathered through the interviews was analyzed to find the characteristics of the piglet feed market in different countries. Respondents were asked to rate 20 statements concerning Porter's five forces on a 5-point scale for two time points – 2008 and 2013. The scale ranged from '1 – to no extent' meaning that a certain statement has no relevance, to '5 – to very great extent' meaning a statement has high relevance. Value '3' meant that a statement had an average relevance. The statements describing the first force – Threat of New Entrants, were recoded. The reason for that was the indicated low entry barriers for new entrants meant a high threat for the existing companies in the industry. Low ratings had to be recoded into high ratings (1 into 5) and high ratings were recoded into low ratings (5 into 1). No recoding was needed for the other statements, as those represented the point of view from the industry incumbents.

The data analysis was conducted in two phases. First the data were analyzed collectively to describe the general sample of countries. Mean ratings were calculated for each force and statement, with a distinction between the current and future (timeframe 5 years) situation. The key success factors (KSFs) were analyzed to find those factors which were chosen as most important across the total sample. The descriptive analysis was done using SPSS, which provided descriptive statistics. Mean values for each factor were calculated together with the standard deviations. The lower the mean, the higher the importance of the factor.

The second phase included a more detailed analysis per country. For each force the mean ratings were counted for two time points (2008 and 2013). The reasons for differences between the mean ratings of forces, as well as the reasons for the differences between the statements within each force, in a particular country are given. The means for each force are plotted on radar plots (Comparative Industry Structure Analysis, see par. 2.3.2), which graphically presented the scores of each force in two points of time. The KSFs are analyzed to find differences between countries, and to find which factors were found to be the most important to be successful company in the piglet feed industry.

3.2.3 Reliability and validity

Reliability and validity are important issues in every research. At the stage of design the research is supposed to represent a logical set of statements (Yin 2003). One can also judge the quality of any given design according to certain logical tests. Yin (2003) proposes four tests with tactics for dealing with these tests and presents the phases of research in which tactics occur. Table below presents the summarized findings.

Table 15 Case study tactics for four design tests

TEST	CASE STUDY TACTIC	PHASE OF RESEARCH IN WHICH TACTIC OCCURS
Construct validity	Use multiple sources of evidence Establish chain of evidence Have key informants review draft case study report	Data collection Data collection Composition
Internal validity	Do pattern matching Do explanation-building Address rival explanations Use logic models	Data analysis Data analysis Data analysis Data analysis
External validity	Use theory in single-case studies Use replication logic in multiple case studies	Research design Research design
Reliability	Use case study protocol Develop case study database	Data collection Data collection

Source: Yin (2003)

The meaning of each test is presented below together with the application to this research paper:

- **Construct validity** deals with establishing correct operational measures for the concepts being studied (Yin 2003). In the case of this research it was met by operationalization of the theoretical concepts. The measures for these concepts were found and used in the empirical research. Additionally the protocol of a case study was developed and before applying it the protocol was tested with one of the employees of TNI. After receiving his remarks and comments the case study documents were adopted and never changed again.
- **Internal validity** deals with establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships (for explanatory or causal studies only, and not for descriptive or exploratory studies) (Yin 2003). One increases internal validity by doing pattern matching, explanation building, addressing rival explanation or using logic models. In this research the main group of people who were interviewed was a group

of TNI employees. This fact might decrease the internal validity of the research, as the investigated problem is not really viewed from different angles. Nevertheless, an attempt was done to contact the experts in the field of pig production, which enriched the results of the analysis and slightly increased the internal validity.

- **External validity** deals with establishing the domain to which a study's findings can be generalized (Yin 2003). The main objective of this research is to propose the competitive strategies for different EU countries based on the industry characteristics. Due to the scope of the research and time constraint the results are based on 8 interviews, only one interview per country. This can be seen as a factor decreasing the external validity on the individual (country) level. Nevertheless, on the group (EU) level, 8 interviews should be sufficient to make general assumptions about the piglet feed industry segment in EU.
- **Reliability** deals with demonstrating that the operations of a study – such as the data collection procedures – can be repeated, with the same results (Yin 2003). Reliability can be improved by using case study protocol and developing a case study database. For the purpose of this paper the case study protocol was developed, which ensured that the data gathering was conducted always in the same way and could be repeated.

3.3 LIMITATIONS

There are several limitations that could have influenced the results of the research.

One of the limitations of this study is the chosen set of theory concepts and tools. This research applied Porter's five forces model, comparative industry structure analysis and key success factors for answering the research problem, however other tools could have been used as well, i.e. industry life cycle model. The goal of this research was to suggest the appropriate competitive strategies for a company, which normally should be based on the analysis of the external environment (business environment) and internal environment (internal situation) of a company. However, this study focuses on the external environment and analysis of the industry, and therefore the results of the conducted analysis can differ from the possible results of a full analysis (external and internal).

Another limitation is the number of conducted interviews. For each of the chosen countries only one interview has been conducted, which might not provide a complete picture of the piglet feed market in a country. One interview gives only on view point on the market structure and dynamics. Moreover, the interviews have been done with the employees of one company and no data have been gathered from other industry members. Employees of the same company can have one view point which is in line with the strategy of the company.

The following limitation concerns the operationalization of the theory concepts and data analysis. For example, the validity of Porter's five forces analysis is as good as: (1) the identification of factors that influence each of the five forces and (2) the subjective evaluation of each factor by the interviewee. This research attempted to overcome these two problems by: (1) using a validated list of factors from the study of Pecotich et al. (1999) (see par. 2.2.1) and (2) introducing a five point scale to assess each factor. The results of the analysis of Porter's five forces might be different, if one chooses other factors

and another method to assess them. A similar problem can be identified in case of the concept of Key Success Factors (KSFs). A key limitation of the KSFs is the aspect of identifying and assessing them. This study used a list of potential success factors developed by Vasconcellos & Hambrick (1989) (see par 2.2.2), and additionally interviewees have been asked to mention additional relevant factors. The reason for doing it was (1) lack of available time to discuss thoroughly possible KSFs and (2) need for structured results. This could have had an influence on the results, because the interviewees might have focused on the given factors and did not mention other potential factors.

3.4 CONCLUSION

To conclude on the methodology the answers to the third research question will be presented.

- **RQ3.** What data sources and data collection method will be used in the empirical part of the research?

  - The data sources that are used are:
    - (1) Documents and media – from European Union institution: Eurostat, which is the statistical arm of the European Commission and FEFAC (European Feed Manufacturer's Federation)
    - (2) People – 8 employees from TNI company in different countries and 2 Dutch experts from different parts of the pig and piglet feed industry.

  - The data collection method consist of two elements:
    - (1) Pre-interview questionnaire – which was the semi-structured document, which aimed at gathering upfront information about the piglet feed markets in different countries.
    - (2) Interview – which was supported with the structured interview document. The goal of the interview was to gather structured data, which can be compared between countries of interest.

The structure of the following empirical chapters is as follows: first the results and analysis chapter is presented, which is divided into the results of the total sample (8 countries) and the results on the individual level (country level). The next chapter – conclusions, concludes on the results and analysis and provides the answer to the main research question. The last chapter discusses the conclusions and gives recommendations for further research.

4. RESULTS AND ANALYSIS

This chapter presents the results of the empirical research and analysis of these results. It provides the answers to the fourth and fifth research question, which are:

RQ4. What is the structure and dynamics of the piglet feed industry segment in the total sample?
RQ5. What is the structure and dynamics of the piglet feed industry segment in individual countries and do some countries possess similar characteristics?

4.1 INTRODUCTION

First the general results for the total sample of countries will be presented, where the results for Porter's five forces are shown in two points of time (2008 and 2013). These presents the structure of the piglet feed industry segment in 8 countries as a whole. By presenting the results at two points of time, the dynamics are uncovered. Additionally, the results of the KSFs analysis are presented and the list of the most important is shown.
Second, the results for individual countries are revealed. They begin with the presentation of the general piglet market characteristics, i.e. farm structure and number of sows per size of the farm (depending on the sow breeding herd), sow population, the piglet feed production in different countries (data was not available for Poland, Hungary, Czech Republic and partly for Ireland). These are followed by the results of five competitive forces, also over time. Then the competitors' analysis is presented. Moreover the results from the KSFs analysis are shown.

Five forces analysis

The analysis of the five forces has a goal to indicate (according to the theoretical framework of this study – see par 2.5, figure 9), which competitive strategy should be applied, taking into account the strength of these forces. Therefore, in order to define the strength of the forces the following strength's level classification was made with corresponding competitive strategies that can be applied.

Table 16 Classification of forces' strength

Force's mean score range:	Force's strength is:	Competitive strategy
5.0 – 3.6	High	Operational Excellence
3.5 – 2.6	Medium	Product Leadership or Customer Intimacy
2.5 – 1.0	Low	

This classification will be used to define the forces' strength levels and corresponding competitive strategies in the analysis of the results of the total sample and of the individual countries.

KSFs analysis

The goal of the analysis of KSFs is also to indicate, which competitive strategy should be applied, taking into account the most important factors that are needed in the piglet feed industry segment. As it was described in the methodology chapter, the respondents were asked to choose 5, out of 11,

factors and rank them according to the importance (1-most important, 5-least important). In order to analyze the results of the KSFs the ranks had to be translated into scores, as presented in the table:

Table 17 KSFs ranking translation into scores

RANK	SCORE
I	5
II	4
III	3
IV	2
V	1

The next step in the KSFs analysis was concerned with defining, which competitive strategy should be chosen based on the KSFs selection and their importance. The theoretical framework (see par 2.5) shows that to each of the three competitive strategies a number of KSFs is assigned: Operational excellence – 4 factors, Product Leadership – 5 factors and Customer Intimacy – 2 factors. Due to the fact that the number of factors was not equal per each of the strategies, weights have been assigned to each of the factor group, according to the following scheme:

Table 18 KSFs weights

STRATEGY	FACTOR	WEIGHT
Operational Excellence	1. Firm size 2. Distribution 3. Location of manufacturing facilities 4. Purchasing	0.25
Product Leadership	5. Image 6. Advertising and sales promotion 7. Product R&D 8. Quality control 9. Know-how	0.20
Customer Intimacy	10. Marketing knowledge of the sales 11. Service	0.5

The weight have been calculated based on the number of factors for each of the strategy, in example if there are five factors assigned to Product Leadership, the weight for each single factor is 1/5 which is 0.2.

To summarize, the ranks per country were translated into scores, and the scores were multiplied by the corresponding weights. In the conclusions to this chapter the results per factor were added, keeping in mind which factor was related to which strategy. In this way, scores for each strategy were calculated. The higher the score the higher the relevance of strategy.

This analysis will be used in the investigation of the results of the total sample and of the individual countries.

4.2 TOTAL SAMPLE RESULTS

Data have been collected for 8 different countries: Ireland, Belgium, Netherlands, Denmark, Germany, Poland, Czech Republic and Hungary. Before presenting detailed information about each country's situation on the piglet feed market, the analysis will be presented for the total sample of 8 countries stated above. First the results of the Porter's five forces are presented at two points of time: in the

year (1) 2008 and (2) 2013. It includes the results of variables constructing each of the five forces. The mean scores for each force (based on the mean scores of the variables) are calculated and used to present the strength of each force and the changes between two points of time. Secondly, the results of the KSFs investigation within the total sample of countries are presented.

Five forces results

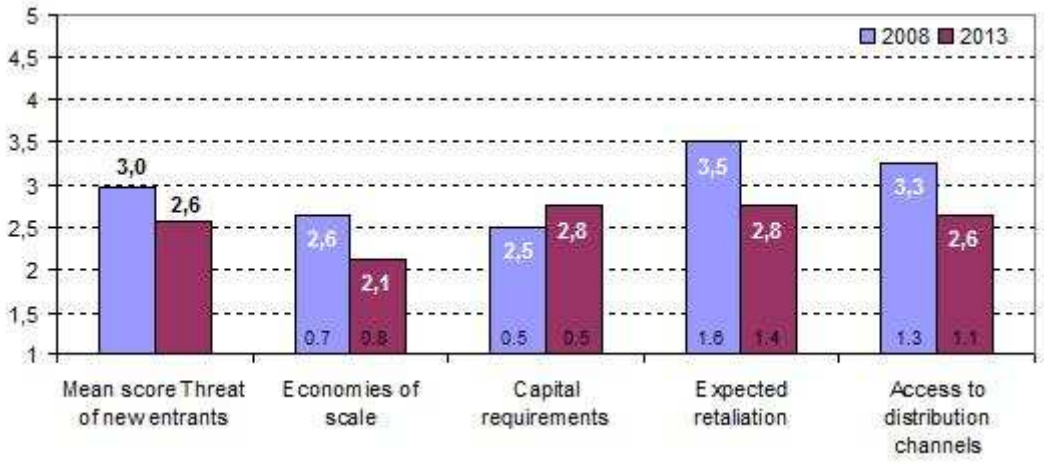
For each of the five forces ratings were collected for four statements. The gathered data was analyzed using descriptive statistics in SPSS. The results of this analysis, which are presented below in the graphs (bar charts), include the mean scores for the forces and the mean scores for variables constructing each force with corresponding standard deviations (presented on the bottom of the bars). The mean scores ranged from '1' indicating that a certain variable has no relevance, to '5' indicating a variable has high relevance. Mean score of '3' means that a variable has an average relevance. Standard deviations measure how well the mean represents the data. Small standard deviation (relative to the mean) indicates that data points are close to the mean. Large standard deviation (relative to the mean) indicates that the data points are distant from the mean (Field 2005).

Threat of new entrants

As mentioned before the scale for the first force has been recoded (par. 3.2.2), due to the fact that the higher the entry barriers for new entrants the lower 'the threat of new entrants'. Therefore the results presented below indicate that the higher the mean score the higher the threat to incumbent companies that new firms will enter the industry. Conversely, the lower the mean score the lower the threat of new entrants (i.e. new companies have difficulties to enter the market and the position of existing companies is safer)

The results for the threat of new entrants and for variables constructing this force are presented in the graph below.

Graph 1 Total sample results for the Threat of new entrants' force.



As it can be seen from the graph, the mean scores for the Threat of new entrants' force are 3.0 and 2.6 in 2008 and 2013 respectively (see first pair of bars). According to the forces' strength classification the strength of the 'Threat of new entrants' force is Medium in 2008 and is expected to

decrease to Low in 2013. It indicates that there will be fewer firms willing to enter the industry (because of higher entry barriers).

As the mean score for the Threat of new entrants' force was calculated using the mean scores of the variables that construct this force, now the results for these variables will be presented and described.

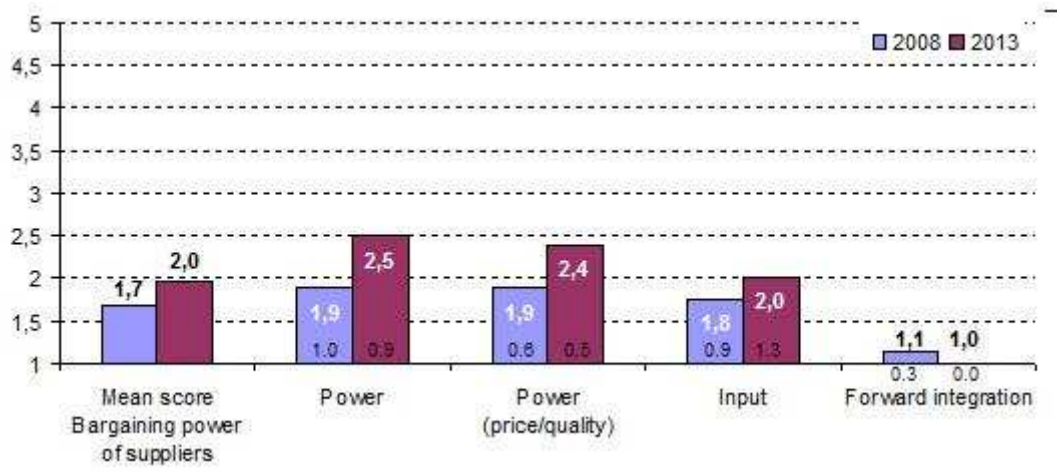
1. Economies of scale – it can be seen that the mean score of this variable is supposed to decrease in the coming five years, from 2,6 in 2008 to 2,1 in 2013 (standard deviations are low for both mean scores, saying that answers of all respondents did not differ much). The supposed decrease in the mean scores indicates that it is a desired situation for the companies already existing in the industry, because there may be fewer competitors willing to enter the industry. It also shows that newcomers will face considerable cost disadvantages when entering the piglet feed industry.
2. Capital requirements – the expected slight increase in the mean scores from 2.5 in 2008 to 2.8 in 2013 (standard deviations are low for both mean scores, saying that answers of all respondents did not differ much) points out that new entrants will require lower financial resources to start piglet feed production. Although the expected increase in the mean scores is very slight (it is not considerably affecting the Threat of new entrants' force), it can be considered as undesired situation for existing companies, because it shows that newcomers will find it easier to enter the industry.
3. Expected retaliation – the expected results shows a large decrease in the mean scores from 3.5 in 2008 to 2.8 in 2013 (standard deviations are relatively high for both mean scores, saying that answers of all respondents differ between each other). It is forecasted that firms willing to enter the piglet feed industry may, in future, expect stronger reaction from existing companies. It can be considered as a desired situation for the latter ones, as fewer firms may decide to enter the industry.
4. Access to distribution channels – the expected results show a large decrease from 3.3 in 2008 to 2.6 in 2013 (standard deviations are relatively high for both mean scores, indicating that answers of all respondents differ between each other). The change may be considered as a positive one from the existing firm's point of view, because it shows that newcomers in future may find it more difficult to persuade distribution to accept their products. This can discourage to enter the piglet feed industry.

Bargaining power of suppliers

The low mean scores for this force indicate that there is a low threat from the raw materials suppliers side, whereas high mean scores indicate that the threat from the suppliers' side is high.

The results for the threat of new entrants' force and for variables constructing this force are presented in the graph below.

Graph 2 Total sample results for the Bargaining power of suppliers' force



The mean scores for the Bargaining power of suppliers force are 1,7 in 2008 and 2,0 in 2013. According to the forces' strength classification the strength of the 'Threat of new entrants' force is Low in 2008 and 2013. Although the threat is low at both points of time, there is expected slight increase, which indicates that suppliers will slightly gain the power in the industry.

The results for variables that had an influence on this slight increase of the suppliers' power are presented and described below:

5. Power – the mean score for this variable is expected to increase from 1,9 in 2008 to 2,5 in 2013 (standard deviations are relatively high for both mean scores, indicating that answers of all respondents differ between each other). It is supposed that suppliers, will gain more power in the coming five years
6. Power (price/quality) – the results present expected increase in the mean scores from 1,9 in 2008 to 2,4 in 2013 (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much). It is anticipated that, in future, suppliers can gain the power in changing the prices or reducing the quality of raw materials independently.
7. Input – mean scores' expected slight increase from 1,8 in 2008 to 2,0 in 2013 (standard deviations are relatively high for both mean scores, indicating that answers of all respondents differ between each other) says that there may be a little change in this variable assessing whether a small number of suppliers sells a large proportion of inputs.
8. Forward integration – as the mean scores show, 1,1 in 2008 and 1,0 in 2013 (standard deviations are very low for both mean scores, saying that answers of all respondents almost did not differ), this variable has almost no relevance and there is expected hardly any change in this variable, which checks whether suppliers can easily realize piglet feed production in their activities. It is thus anticipated that suppliers will not try to become piglet feed producers themselves in the near future.

Bargaining power of buyers

The low mean scores for this force indicate that there is a low threat from buyers of piglet feed, whereas high mean scores indicate that the threat from buyers is high.

The results for the threat of new entrants and for variables within this force are presented in the graph below.

Graph 3 Total sample results for the Bargaining power of buyers' force.

The mean scores for the Bargaining power of buyers' force are 2,7 in 2008 and 3,6 in 2013. According to the forces' strength classification the strength of the 'Threat of new entrants' force was Medium in 2008 and is expected to increase to High in 2013. It indicates that buyers are expected to gain the power in the industry.

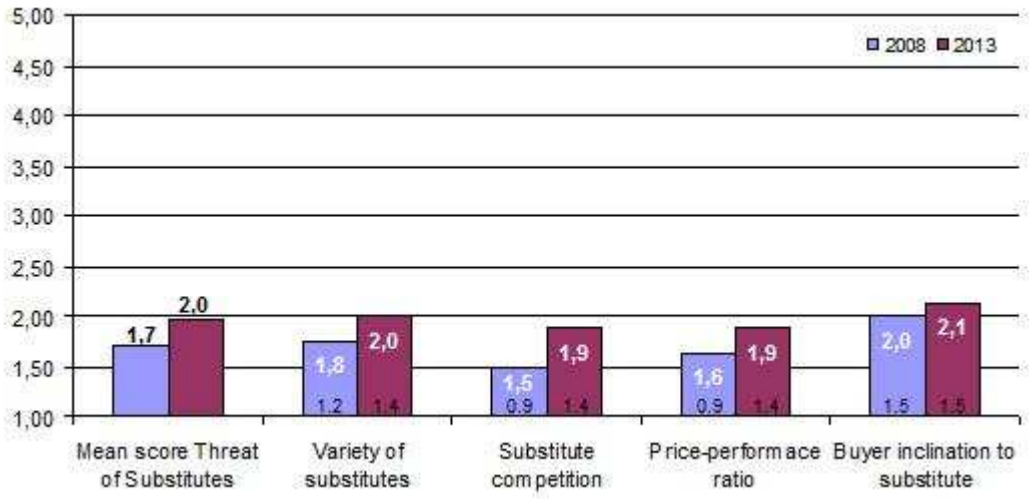
The results for variables that had an influence on the increase of the buyers' power are presented and described below:

9. Buyers' awareness – the results show an expected large increase in the mean score from 2,8 in 2008 to 4,4 in 2013 (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much). It is anticipated that buyers, in future, will be much better informed about different products' characteristics than they are today.
10. Importance of volume – the results show an expected large increase in the mean scores from 2,4 in 2008 to 3,3 in 2013 (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much). The expected increase indicates a smaller number of buyers on the piglet feed market, who will realize a large proportion of sales.
11. Price sensitivity – the expected increase in the mean scores from 3,0 in 2008 to 3,5 in 2013 (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much) indicates that in the future buyers of the piglet feed products will be more price sensitive.
12. Type of buyers – the mean score is supposed to increase from 2,8 in 2008 to 3,4 in 2013 (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much). It is expected that, in the future, there will be more other market actors, who may influence the final consumers' purchase decision.

Threat of substitutes

Low mean scores indicate that there is a low threat of substitutes of piglet feed, whereas high mean scores indicate that the threat of substitutes is high. The results are presented below

Graph 4 Total sample results for the Threat of substitutes' force.



In case of the Threat of substitutes' force, respondents, representing 3 countries (out of 8), did not perceive piglet feed according to its full definition used in this research (see chapter 1) and also had a difficulty in comprehending the issue of substitute. Therefore their answers had to be adapted to the answers given by other respondents (responsible for the other five countries) who indicated that, according to the definition of piglet feed, there are no real substitutes to piglet feed. As a results they ranked all the variables constructing Threat of substitutes force with the score '1' – no relevance in 2008 and 2013, which indicates that currently there are no substitutes to piglet feed and no substitutes are expected to be present in the 5 year future.

After adapting the scores of the three respondents, who incorrectly understood the issue of substitution, value of the 'Threat of substitutes' was '1' – no relevance at all. Therefore the variables: (13) Variety of substitutes, (14) Substitute competition, (15) Price-performance ration and (16) Buyers inclination to substitute, are not described.

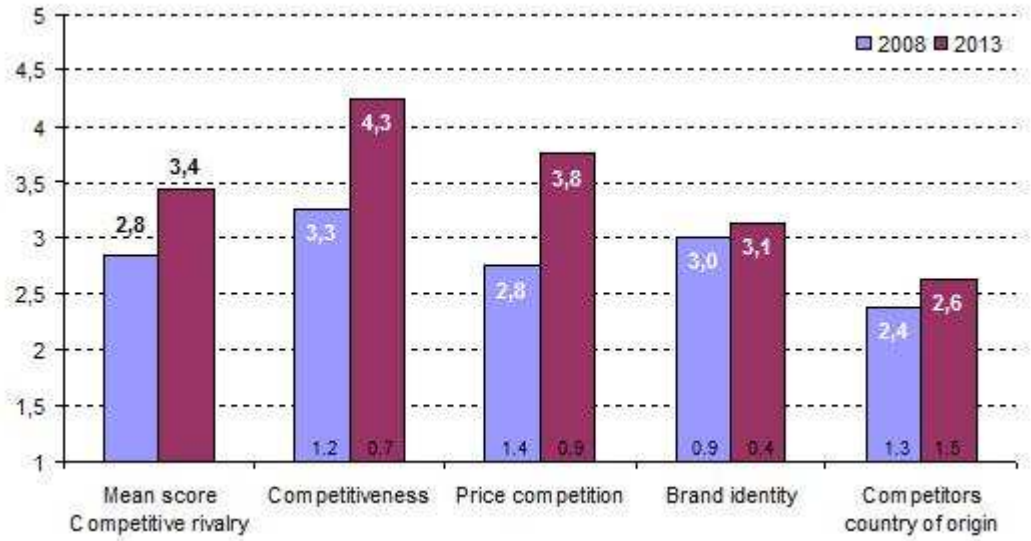
Consequently this force is treated as absent, but according to the forces' strength classification, it is considered that the Threat of substitutes' strength is Low in 2008 and is expected to be Low in 2013.

Competitive rivalry

Low mean scores for this force indicate low rivalry in the industry, whereas high mean scores indicate that the rivalry among piglet feed producers is high.

The results for the threat of new entrants and for variables within this force are presented in the graph below.

Graph 5 Total sample results for the Competitive rivalry's force



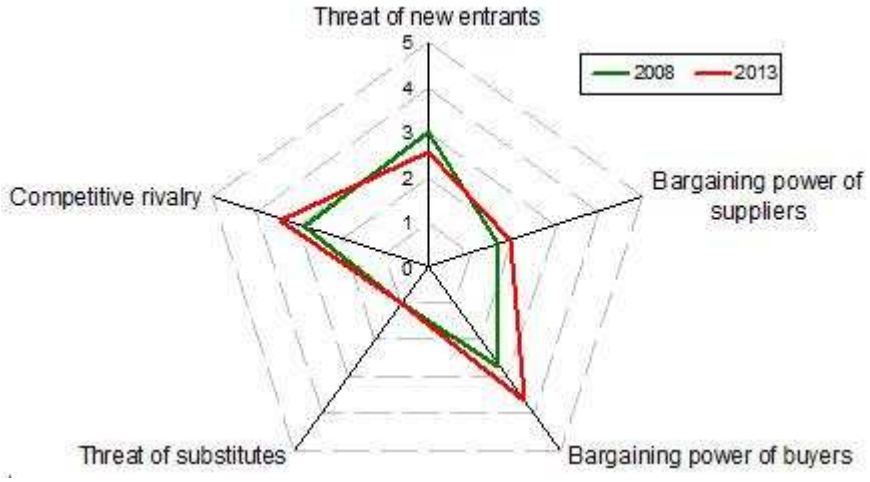
The mean scores for the Competitive rivalry force are 2,8 in 2008 and 3,4 in 2013. According to the forces' strength classification the strength of the Competitive rivalry force is High in 2008 and 2013. The mean score results also indicate that competition in the piglet feed industry segment is expected to increase.

The results for variables that had an influence on the expected increase of competitive rivalry are presented and described below:

17. Competitiveness – the results show an expected large increase in the mean score from 3,3 in 2008 to 4,3 in 2013 (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much). It is expected that in the future firms will be competing more intensely to hold and/or increase their market shares than they do now.
18. Price competition – the results show an expected large increase in the mean score from 2,8 in 2008 to 3,8 in 2013 (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much). It is anticipated that the price competition will be more intense in the future.
19. Brand identity – nearly no changes are expected for this variable, as the mean scores for the 2008 and 2013 almost do not differ, 3,0 and 3.1 in 2008 and 2013 respectively (standard deviations are relatively low for both mean scores, saying that answers of all respondents did not differ much). It indicates that the brand identity's importance will rather stay the same.
20. Competitors country of origin – the results show an expected slight increase in the mean score from 2,4 in 2008 to 2,6 in 2013 (standard deviations are relatively high for both mean scores, indicating that answers of all respondents differed between each other). It is expected that there will be hardly any change over time concerning the intensity of competition stimulated by foreign firms.

Looking at the total sample (see graph 6 below) it was found that generally the strength of the forces is expected to be low and medium in 2013. Only *Bargaining power of buyers* can be expected to be a strong force in the coming 5 years, and *Competitive rivalry* is expected to be the second strongest force in 2013.

Graph 6 Five competitive forces over time (2008 and 2013) in the total sample.



Key Success Factors (KSFs) results

From the list of 11 possible success factors, respondents were asked to choose and rank 5 of them according to their importance (from 1 most important till 5 least important). Then the rank was translated into scores (see par 4.1). This way of calculating the mean scores implies that the higher the mean score the more important the factor.

The table below presents the mean scores of each of the factors, the number of times it was selected and the minimum and maximum values they received (after recoding). The last column summarizes and presents the ranking of the most important KSFs according to the results from the all respondents.

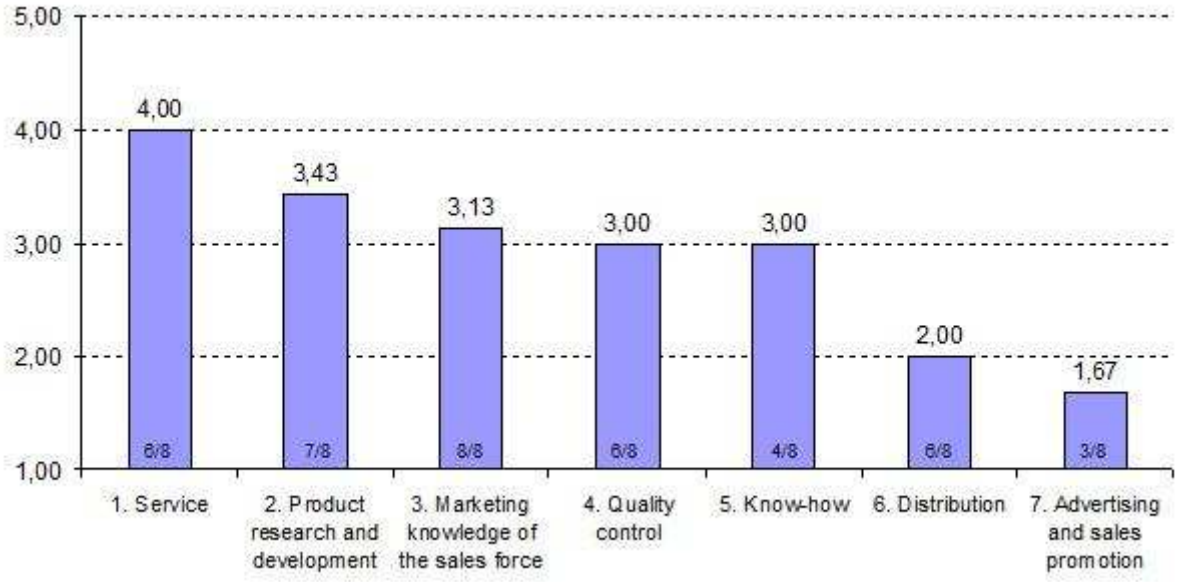
Table 19 Total sample results for KSFs

	FACTORS	N. OF CASES	MEAN	MIN.	MAX.	RANK
1	Image	0/8	-	-	-	**-**
2	Marketing knowledge of the sales force	8/8	3,13	1	4	**3**
3	Advertising and sales promotion	3/8	1,67	3	5	**7**
4	Product research and development	7/8	3,43	1	5	**2**
5	Service	6/8	4,00	1	3	**1**
6	Firm size	0/8	-	-	-	**-**
7	Distribution	6/8	2,00	2	5	**6**
8	Location of manufacturing facilities	0/8	-	-	-	**-**
9	Quality control	6/8	3,00	1	4	**4**
10	Purchasing	0/8	-	-	-	**-**
11	Know-how	4/8	3,00	2	5	**5**

As the table shows *image*, *firm size, location of manufacturing facilities* and *purchasing* have not been chosen by any of the respondents. Each of the other factors was chosen at least once and therefore they are a subject to further analysis. From these factors the ranking of the most important was made,

as presented in the table above (rank column) and in the graph below (according to the importance ranking, after recoding).

Graph 7 Total sample results for the most important KSFs



The rank of the most important factors is as follows:

1. Service (ability to advice customers on how to use piglet feed products, support in the area of piglet production (i.e. what feeding programs to use, how to solve the disease problems, etc.)) – appears to be the most relevant KSF with the mean score of 4,0, selected for six countries.
2. Product research and development (constantly modifying, improving the piglet feed products, adding new functions (i.e. problem solving feed) and developing new kind of feeds) – with the mean score of 3,4, chosen for seven countries.
3. Marketing knowledge of the sales force (ability to persuade and convince customers to buy piglet feed products, knowing the needs and values of customers) –with the mean score of 3,1, selected for eight countries.
4. Quality control (ability to maintain constant, reliable, high quality level of feed products) – with the mean score of 3,0, selected for six countries.
5. Know-how (technological knowledge needed to be able to produce piglet feed) – with the mean score of 3,0, selected for four countries (although it has the same mean score as the previous factor, it was selected only for four countries and therefore it is considered as less important that factor IV)
6. Distribution (ability to maintain low distribution costs and assure that the deliveries are made on time with the right volumes) – with the mean score of 2,0, selected for six countries.
7. Advertising and sales promotion (being present on fairs, in magazines, etc. Promote piglet feed brands) – with the mean score 1,7 selected only for three countries.

The KSFs described above represent three different competitive strategies. According to the KSFs analysis (see par 4.1) the next step is to multiply the scores by corresponding weights.

Table 20 Weighted KSFs' scores for the total sample.

FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Service	4.0	0.5	2.0
2. Product R&D	3.4	0.2	0.7
3. Marketing knowledge of the sales force	3.1	0.5	1.6
4. Quality control	3.0	0.2	0.6
5. Know-how	3.0	0.2	0.6
6. Distribution	2.0	0.25	0.5
7. Advertising and sales promotion	1.7	0.2	0.3

The table above presents the weighted scores for different factors. Later the results per factor will be added, keeping in mind which factor was related to which strategy. In this way, scores for each strategy will be calculated, indicating which should be chosen.

4.3 COUNTRIES' RESULTS AND ANALYSIS

The results for the individual countries are presented in the following order: Belgium (B), The Netherlands (NL), Denmark (DK), Germany (D), Ireland (IRL), Poland (PL), Hungary (H), and Czech Republic (CZ).

First the general market characteristics are presented, which include the analysis of the farm structure (number of farms) and heads (number of sow) by the size of the breeding sow herd, in each country. The data is presented for the years; 2003, 2005, 2007 and presents the trends in the piglet production market. Although, the pre-interview questionnaire included a question about these aspects, the answers given by the interviewees were incomplete and in some cases, they did not present the real situation on the market. Therefore the data presented in this chapter is taken from Eurostat, which is a reliable source and allows comparisons between countries. Additionally, the piglet feed production volumes are presented, based on the data from the FEFAC federation, for Belgium, The Netherlands, Denmark, Germany and partially for Ireland. Data for Poland, Hungary and Czech Republic was not available.

Second the results and analysis of the structure and dynamics of the piglet feed industry segment are presented for each country. The average scores for each of the five forces, in two points of time (2008 and 2013) are shown. The reasoning for changes in various industry aspects (five forces), which are presented in this paragraph, are based on the pre-interview questionnaire and the interview document, which were used to collect the data. Both documents, for each of the stated above countries, can be found in the appendix 2.

Third the competitors' analysis is presented. At the beginning the list of piglet feed producers in each country, and their market share, is given. Later the analysis is done in the form of measuring the industry concentration ratio - C4. It is an indicator of the relative size of companies in relation to the whole industry. It measures the market share, in percentage, of four largest firms in the industry.

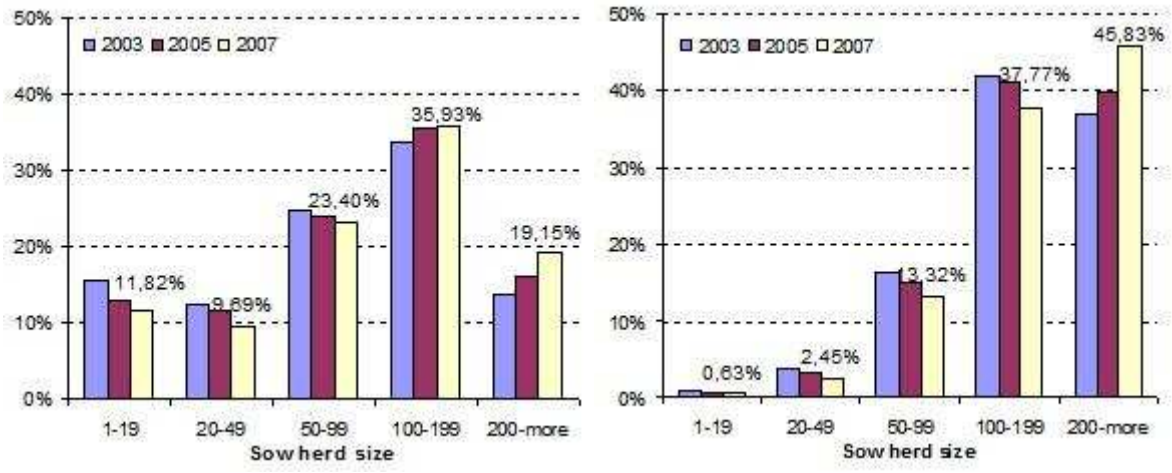
Fourth the list of Key Success Factors required in the piglet feed industry segment in a particular country is presented.

4.3.1 Belgium

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in Belgium. Detailed results are presented for the year 2007 (percent values).

Graph 8 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in Belgium



Source: Based on http://epp.eurostat.ec.europa.eu

In Belgium, in 2007, there were 4230 farms, which had in total 567 580 sows. Since 2003 there is a declining trend in the sow population (see appendix 3).

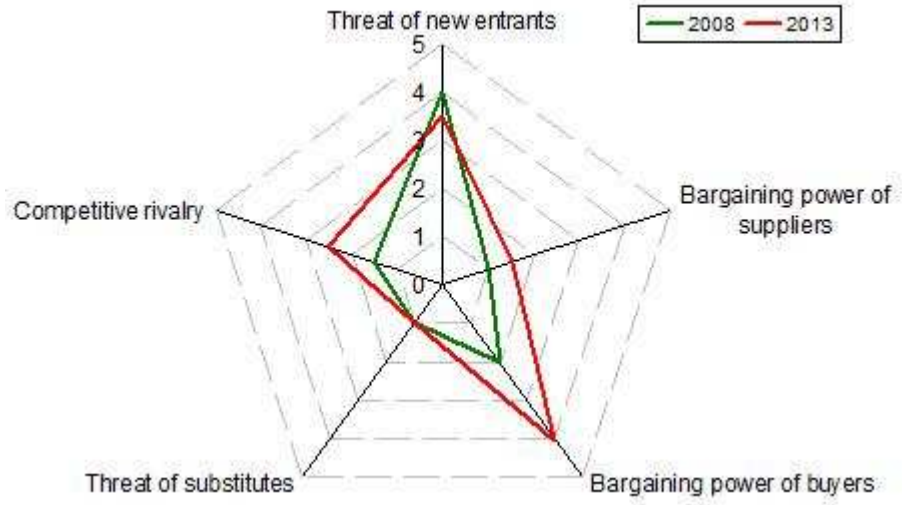
Concerning farm structure the proportion of farms of up to 99 sows is decreasing over the last 5 years, but the proportion of farms with more than 100 sows is increasing and approx. 20% of the farms had more than 200 sows in 2007. Moreover, the distribution of sows across different farm sizes is changing. The proportion of sow heads is decreasing on farms up to 199 sows, but an increase is visible in the proportion of sow heads on farms of more than 200 sows. In 2007 approx. 45% of all sows were raised on farms with more than 200 sows. The results show an increase in the number of sows in the biggest farms, and according to interviewee '3' this trend is expected to continue.

Concerning piglet feed production in Belgium, according to FEFAC it is rather on a stable level since 2003. In 2007 the production level was 799 000t (see appendix 3). According to interviewee '3' major expected trends are: outsourcing of piglet feed production to specialized producers, health improving' feeds to respond to ban or limitation of antimicrobials, adaptation of the feeds to the specific needs of the pig of any age, early weaning recommendations with the right feed and feeding program.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 9 Five competitive forces over time (2008 and 2013) in Belgium.



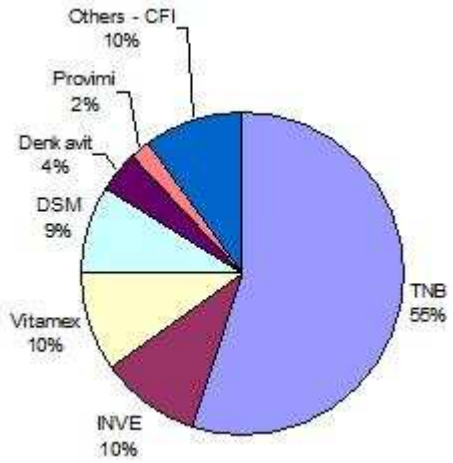
A shift can be expected concerning the five forces strength in 2013 compared to 2008. *Threat of new entrants* is expected to weaken, and to be medium in 2013. According to interviewee '3' the main reason is that potential new entrants will risk stronger reaction from industry incumbents and will find it more difficult to sell their product on the market. *Threat of substitutes* was said to be absent and is not expected to change. Small increases are expected concerning *Competitive rivalry* and *Bargaining power of suppliers* in 2013 as compared to 2008. Competitive rivalry's and Bargaining power of suppliers' slight increase will be due to the fact that companies will compete more intensely for the market share and that specialty raw materials suppliers (i.e. of vitamins) will be more powerful. Nevertheless, both forces are expected to be still low in 2013. The biggest change is expected for *Bargaining power of buyers*, as its strength is expected to grow from low to high in 2013. According to interviewee '3' it can be caused by the fact that buyers will be better informed about the market offer and will be more price sensitive than they were in 2008. Also there will be fewer buyers, who will realize a large proportion of piglet feed sales in Belgium (it is connected with the concentration of the sow farms).

To summarize the general strength of the five forces is low and medium.

Competitors' analysis

The figure below presents the competitors, with their corresponding market shares, active on the piglet feed market in Belgium.

Figure 10 Competitors on the piglet feed market in The Netherlands.



Source: Based on the pre-interview questionnaire

As it can be seen, the market is highly concentrated, as the concentration ration C4 equals 84%. The very visible market leader is Trouw Nutrition Belgium, which is followed by INVE, Vitamex and DSM. At the end of the list, with 10% market share, are firms from Compound Feed Industry (CFI) – which produce compound feed, but still have in their offer piglet feed (specialty feed). According to interviewee '3' their market share will be decreasing, as feed production companies specialize and will focus either on compound feed or specialty products, i.e. piglet feed.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in Belgium is presented in the table below together with corresponding weighted score for each factor

Table 21 Weighted KSFs' scores for Belgium

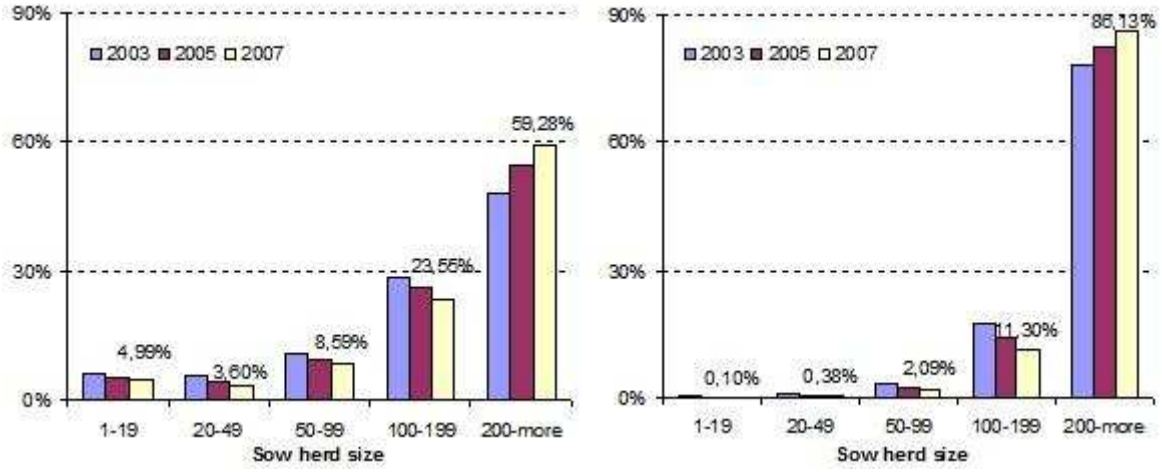
FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Product R&D	5	0.2	1.0
2. Know-how	4	0.2	0.8
3. Quality control	3	0.2	0.6
4. Marketing knowledge of the sales force	2	0.5	1.0
5. Distribution	1	0.25	0.25

4.3.2 The Netherlands

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in The Netherlands. Detailed results are presented for the year 2007 (percent values).

Graph 10 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in The Netherlands



Source: Based on http://epp.eurostat.ec.europa.eu

In The Netherlands, in 2007, there were 3610 farms, which had in total 1 060 000 sows. Since 2003 there is a slightly declining trend in the sow population (see appendix 3).

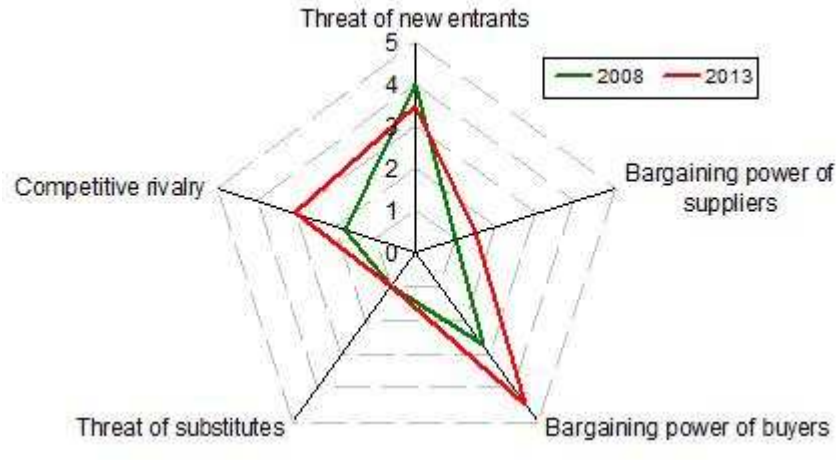
Concerning farm structure the proportion of farms of up to 199 sows is decreasing over the last 5 years, but the proportion of farms with more than 200 sows is increasing and approx. 60% of the farms had more than 200 sows in 2007. Moreover, the distribution of sows across different farm sizes is changing. The proportion of sow heads is decreasing on farms up to 199 sows, but an increase is visible in the proportion of sow heads on farms of more than 200 sows. In 2007 approx. 86% of all sows were raised on farms with more than 200 sows. The results show an increase in the number of sows in the biggest farms and according to the interviewee '4' and '10' these farms will become even bigger in the coming years.

Concerning piglet feed production in The Netherlands, according to FEFAC, since 2003 it is increasing and in 2007 the production level was 830 000t (see appendix 3). According to interviewee '4' major trends that are expected are: motherless rearing, outsourcing piglet feed production, weaning lighter piglets - increase use of luxurious piglet feeds.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 11 Five competitive forces over time (2008 and 2013) in The Netherlands



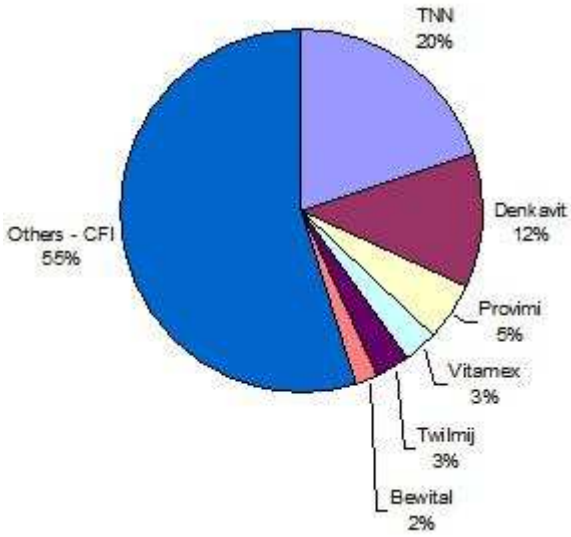
A shift can be expected concerning the five forces strength in 2013 compared to 2008. *Threat of new entrants* is expected to weaken from high to medium in 2013. According to interviewee '4' the main reason is that potential new entrants will risk stronger reaction from industry incumbents and will find it more difficult to sell their product on the market. *Threat of substitutes* was said to be absent and is not expected to change. Strength of *Bargaining power of suppliers* is expected to increase slightly, but remain on the Low level. Suppliers are not expected to become threats to piglet feed producers. Increases are expected concerning *Competitive rivalry* and *Bargaining power of buyers* forces. The former one's strength will increase from Low to Medium, and the latter one's strength will increase from Medium to High. Competitive rivalry will increase mainly due to the fact that companies will compete more intensely for the market share and competition may be more price driven. *Bargaining power of buyers* is expected to strengthen considerably in the coming years. According to interviewee '4' it can be caused by the fact that buyers will be better informed about market offer and there will be fewer buyers, who will realize a large proportion of piglet feed sales in The Netherlands.

To summarize, although the Bargaining power of buyers' force strength is expected to be high in 2013, in general, taking into account all the forces, their strength will be low and medium.

Competitors' analysis

The figure below presents the competitors, with their corresponding market share, active in the piglet feed market in The Netherlands.

Figure 11 Competitors on the piglet feed market in The Netherlands.



Source: Based on the pre-interview questionnaire

As it can be seen the market is not much concentrated, as the concentration ratio C4 equals 40%. The market leader is Trouw Nutrition Nederland, which is followed by Denakvit, Provimi and Vitamex. At the end of the list, with a visible 55% cumulated market share, are firms from Compound Feed Industry (CFI). In The Netherlands there are many compound feed producers, which still have in their offer piglet feed.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in The Netherlands is presented in the table below together with corresponding weighted score for each factor.

Table 22 Weighted KSFs' scores for The Netherlands

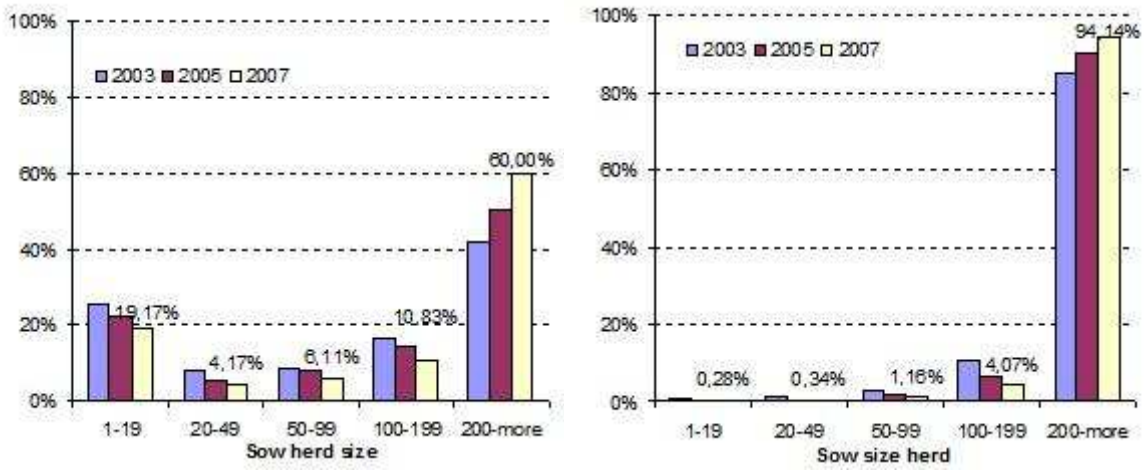
FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Product R&D	5	0.2	1.0
2. Know-how	4	0.2	0.8
3. Quality control	3	0.2	0.6
4. Marketing knowledge of the sales force	2	0.5	1.0
5. Distribution	1	0.25	0.25

4.3.3 Denmark

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in Denmark. Detailed results are presented for the year 2007 (percent values).

Graph 12 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in Denmark



Source: Based on http://epp.eurostat.ec.europa.eu

In Denmark, in 2007, there were 3600 farms, which had in total 1 303 000 sows. Since 2003 there is a declining trend in the sow population (see appendix 3).

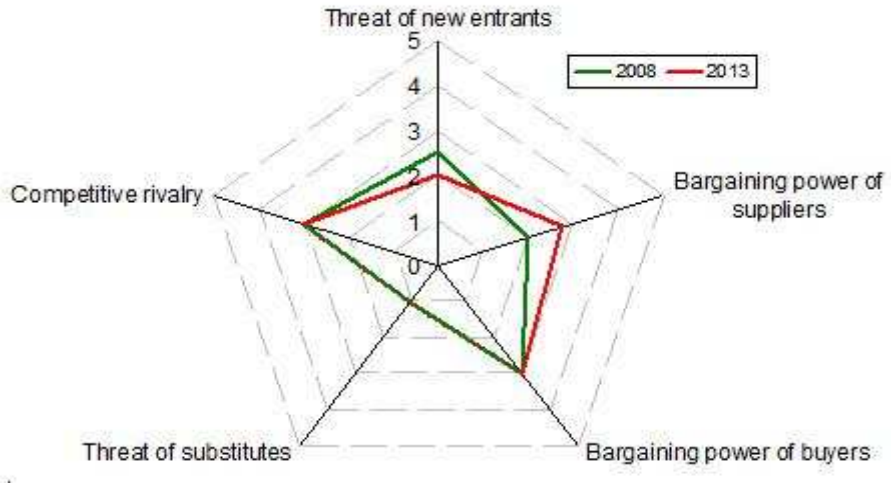
Concerning farm structure the proportion of farms of up to 199 sows is decreasing over the last 5 years, but the proportion of farms with more than 200 sows is increasing and approx. 60% of the farms had more than 200 sows in 2007. Moreover, the distribution of sows across different farm sizes is changing. The proportion of sow heads on the farms up to 199 sows is around 6 % and is decreasing. An increase is visible in the proportion of sow heads on farms of more than 200 sows. In 2007 approx. 94% of all sows were raised on farms with more than 200 sows. The results show that majority of the sow population in Denmark is raised on farms with more than 200 sows and is still increasing.

Concerning piglet feed production in Denmark, according to FEFAC, since 2003 it is rather on a stable level. In 2007 the production level was 663 000t (see appendix 3). According to interviewees '7' and '8' major trends that are expected are: small focus on motherless rearing (large groups) and weaning lighter piglets - increase use of piglet feeds.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 13 Five competitive forces over time (2008 and 2013) in Denmark



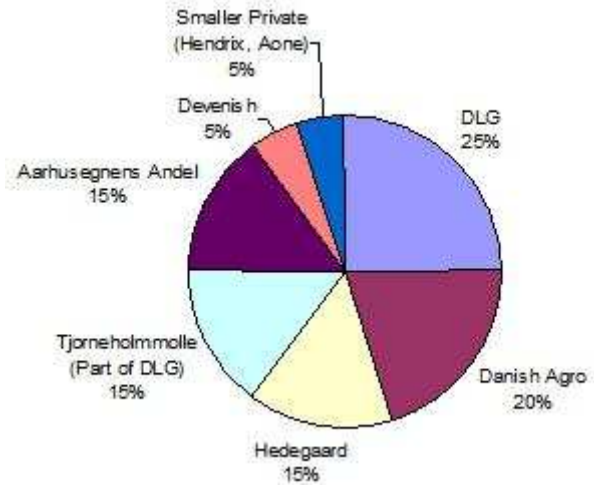
A slight shift can be expected concerning the five forces strength in 2013 compared to 2008. The low strength of the *Threat of new entrants* force is expected to weaken further in 2013. According to the interviewees '7', '8' and '9' the main reason is that potential new entrants will risk stronger reaction from industry incumbents, because there will be less players on the market which will try to control the situation. *Threat of substitutes* was said to be absent and is not expected to change. The strength of the *Bargaining power of suppliers* force is expected to increase slightly from low to medium. No changes are expected concerning *Competitive rivalry* and *Bargaining power of buyers*, which strength is medium in 2007 and will stay on the same level in 2013.

To summarize, in general the strength of all the five forces is low and medium.

Competitors' analysis

The figure below presents the competitors, with their corresponding market share, active in the piglet feed market in Denmark.

Figure 12 Competitors on the piglet feed market in Denmark.



Source: Based on the pre-interview questionnaire

As it can be seen the market is highly concentrated, as the concentration ratio C4 equals 75%. The market leader is DLG, which is followed by Danish Agro, Hedegaard and Tjorneholmmolle. What is interesting is that the fourth largest firm – Tjorneholmmolle, is a part of the market leader DLG, which indicates that 40% of the market share is in the hands of one group. The piglet feed from Trouw Nutrition is sold on the Danish market through the Hendrix company, which is a part of Nutreco group.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in Denmark, is presented in the table below together with corresponding weighted score for each factor.

Table 23 Weighted KSFs' scores for Denmark

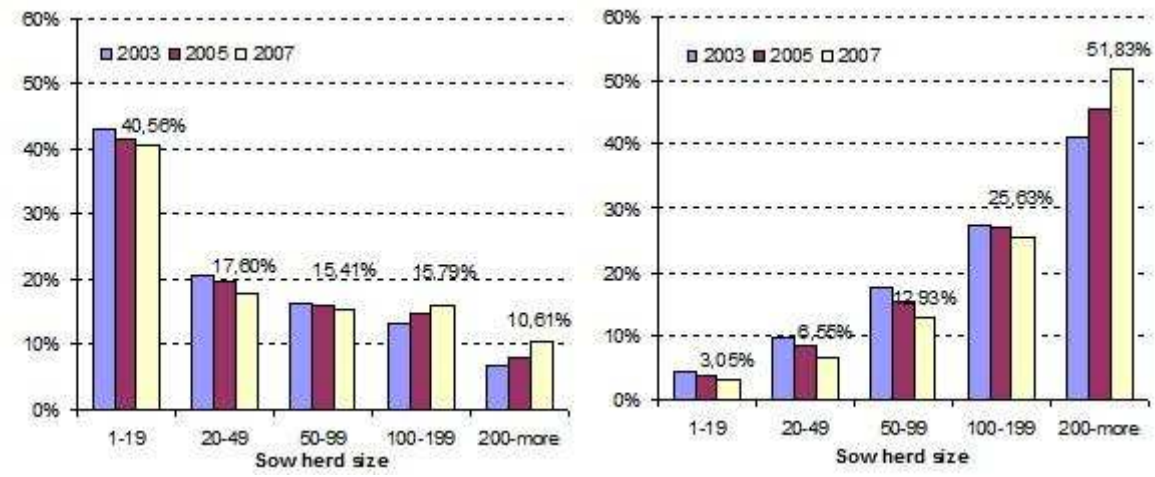
FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Marketing knowledge of the sales force	5	0.5	2.5
2. Service	4	0.5	2.0
3. Product R&D	3	0.2	0.6
4. Quality control	2	0.2	0.4
5. Distribution	1	0.25	0.25

4.3.4 Germany

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in Germany. Detailed results are presented for the year 2007 (percent values).

Graph 14 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in Germany



Source: Based on http://epp.eurostat.ec.europa.eu

In Germany, in 2007, there were 28750 farms, which had in total 2 417 800 sows. Since 2003 there is a declining trend in the sow population (see appendix 3).

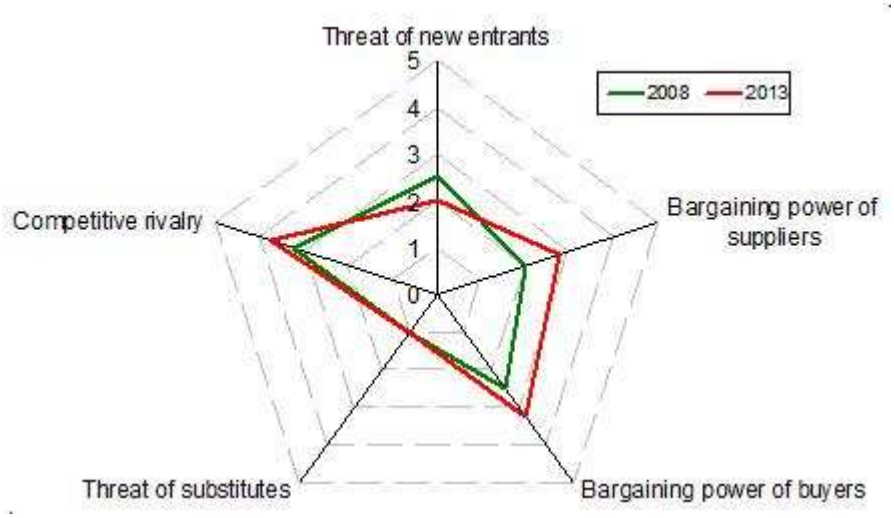
Concerning farm structure the proportion of farms of up to 49 sows is decreasing over the last 5 years. The proportion of farms with 50 to 99 sows was on a rather stable level. The proportion of farms with more than 100 sows is increasing and approx. 10% of the farms had more than 200 sows in 2007. Moreover, the distribution of sows across different farm sizes is changing. The proportion of sow heads on the farms up to 199 sows is decreasing. A large increase is visible in the proportion of sow heads on farms of more than 200 sows. In 2007 approx. 52% of all sows were raised on farms with more than 200 sows, and this percentage is increasing. This indicates that the sow herd sizes are getting bigger.

Concerning piglet feed production in Germany, according to FEFAC, since 2003 it is increasing and in 2007 the production level was 1 763 000t (see appendix 3). According to interviewees '7' and '8' major trends that are expected are: motherless rearing (large groups), outsourcing piglet feed production to more specialized piglet feed production units, weaning lighter piglets - increase use of luxurious piglet feeds.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 15 Five competitive forces over time (2008 and 2013) in Germany



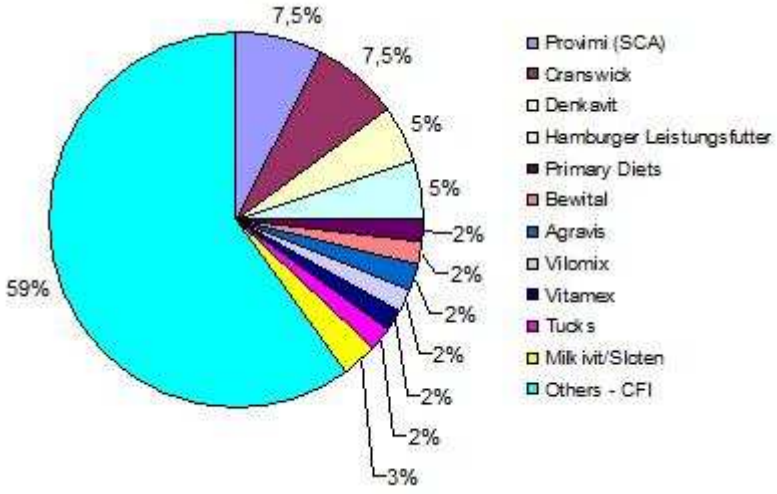
A shift can be expected concerning the five forces strength in 2013 compared to 2008. The low strength of the *Threat of new entrants* force is expected to weaken further in 2013. According to the interviewees '7', '8' and '9' the main reason is that potential new entrants will risk stronger reaction from industry incumbents. *Threat of substitutes* was said to be absent and is not expected to change. *Bargaining power of suppliers'* strength is expected to increase slightly from low in 2008 to medium in 2013. Increases are expected concerning *Competitive rivalry* and *Bargaining power of buyers* forces. Competitive rivalry strength will increase from medium to high mainly due to the fact that companies will compete more on price and that brand identity will become more important. *Bargaining power of buyers* is expected to strengthen from low to medium level in the coming years. According to interviewees '7', '8' and '9' it can be caused by the fact that buyers will be better informed about market offer, there will be fewer buyers, who will buy realize a large proportion of piglet feed sales and the buyer will be more price sensitive in Germany.

To summarize, although the Competitive rivalry force strength is expected to be high in 2013, in general, taking into account all the forces, their strength will be low and medium.

Competitors' analysis

The figure below presents the competitors, with their corresponding market share, active in the piglet feed market in Germany.

Figure 13 Competitors on the piglet feed market in Germany.



Source: Based on the pre-interview questionnaire

As it can be seen the market is hardly concentrated, as the concentration ratio C4 equals 25%. The market leader is Provimi (SCA) together with Cranswick, which is followed by Denakvit and Hamburger Leistungsfutter. At the end of the list, with an almost 60% cumulated market share, are firms from Compound Feed Industry (CFI). In Germany, like in The Netherlands, there are many compound feed producers, which have in their offer piglet feed products.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in Germany is presented in the table below together with corresponding weighted score for each factor.

Table 24 Weighted KSFs' scores for Germany

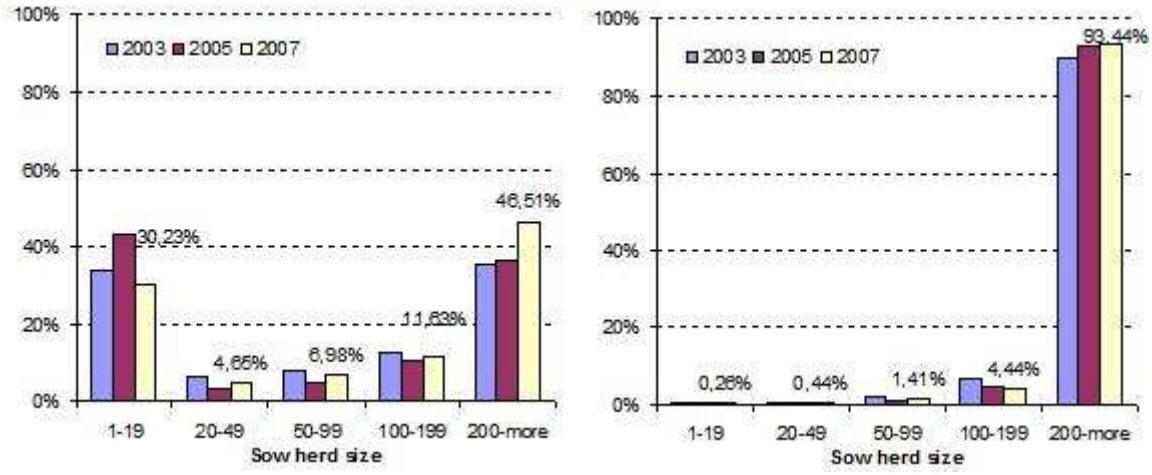
FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Marketing knowledge of the sales force	5	0.5	2.5
2. Service	4	0.5	2.0
3. Product R&D	3	0.2	0.6
4. Quality control	2	0.2	0.4
5. Distribution	1	0.25	0.25

4.3.5 Ireland

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in Ireland. Detailed results are presented for the year 2007 (percent values).

Graph 16 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in Ireland



Source: Based on http://epp.eurostat.ec.europa.eu

In Ireland, in 2007, there were 430 farms, which had in total 160 200 sows. Since 2003 there is a slightly declining trend in the sow population (see appendix 3).

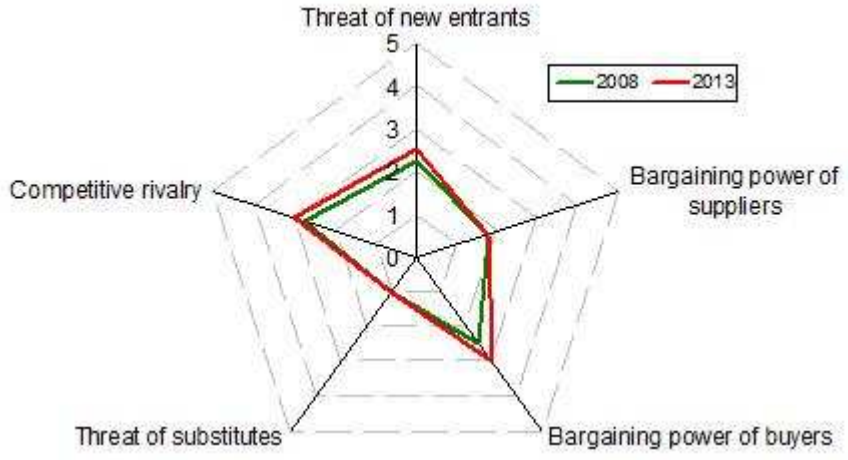
Farm structure in Ireland over the last five years was changing. In 2007 the number of farms with up to 19 sows decreased compared to 2005, but all bigger farms, especially those with more than 200 sows are increasing in number. In 2007 approx. 46 % of farms had more than 200 sows. In Ireland more than 90% of sows are concentrated in farms with more than 200 sows.

Concerning piglet feed production in Ireland, according to FEFAC, between 2003 and 2005 production decreased from 96 000t to 82 000t. No current data are available (see appendix 3). According to interviewee '1' major trends that are expected are: change to liquid feeding systems in larger farms, the decrease usage of Zinc in piglet feed, more use of concentrates for homemixing piglet feeds on farm.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 17 Five competitive forces over time (2008 and 2013) in Ireland



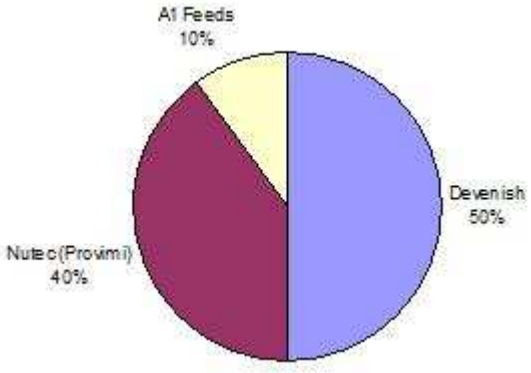
No big differences are expected concerning the strengths of the five forces in 2013. The Low *Bargaining power of suppliers'* force strength will be the same as in 2008. Although interviewee '1' indicated the existence of the substitutes, according to the definition of the piglet feed (see chapter 1) there are no substitutes to piglet feed. Therefore *Threat of substitutes* is considered to be absent and is not expected to change. There will also be slight increase in the strengths in the other three forces, which are expected to be Low or Medium.

To summarize, taking into account all the forces, it can be seen that their strength is Low and Medium.

Competitors' analysis

The figure below presents the competitors, with their corresponding market share, active in the piglet feed market in Ireland.

Figure 14 Competitors on the piglet feed market in Ireland.



Source: Based on pre-interview questionnaire

As it can be seen the market is completely concentrated, as the concentration ratio C4 equals 100% (only three firms present on the market). The market leader is the Devenish company, which is followed by Nutec (Provimi) and A1 Feeds.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in Ireland is presented in the table below together with corresponding weighted score for each factor.

Table 25 Weighted KSFs' scores for Ireland

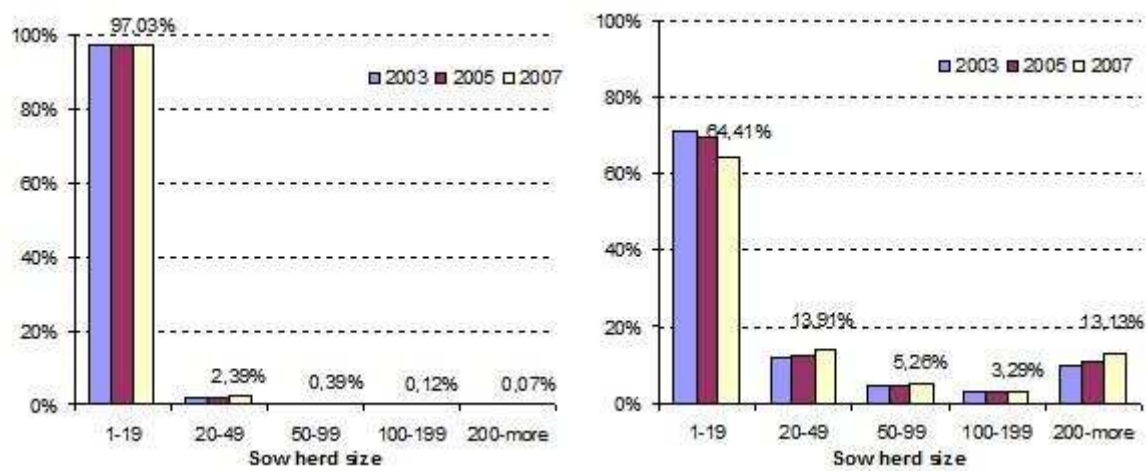
FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Service	5	0.5	2.5
2. Distribution	4	0.25	1.0
3. Know-how	3	0.2	0.6
4. Marketing knowledge of the sales force	2	0.5	1.0
5. Product R&D	1	0.2	0.2

4.3.6 Poland

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in Poland. Detailed results are presented for the year 2007 (percent values).

Graph 18 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in Poland



Source: Based on http://epp.eurostat.ec.europa.eu

In Poland, in 2007, there were 382 210 farms, which had in total 1 587 400 sows. Since 2003 there is a strongly declining trend in the sow population (see appendix 3).

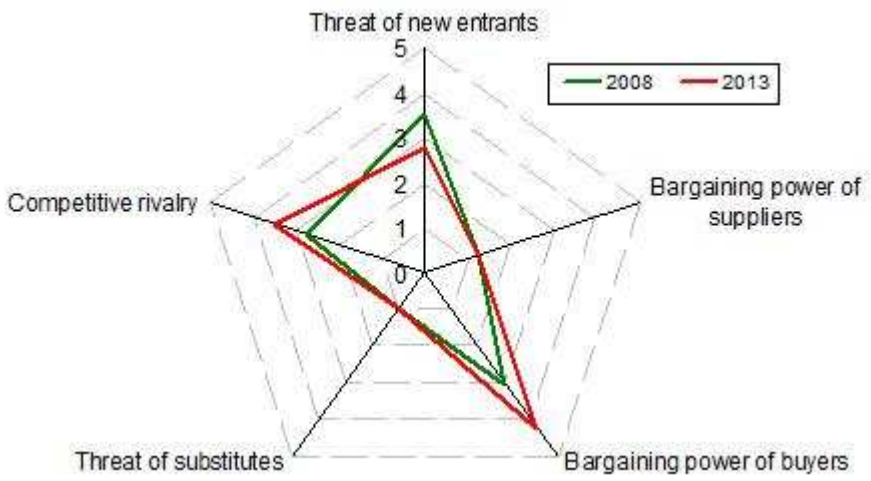
In Poland pig production is not concentrated and 97.03% of all farms are farms raising less than 20 sows. Approximately 65% of the sow population in 2007 was concentrated in small farms with less than 20 sows, but an increasing proportion is being raised in farms of more than 200 sows, 13% in 2007.

Concerning the trends on the piglet feed market, according to interviewee '1' major trends that are expected are: specialization of companies in production of specific piglet feed, increase production of medicine feed for piglets.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 19 Five competitive forces over time (2008 and 2013) in Poland



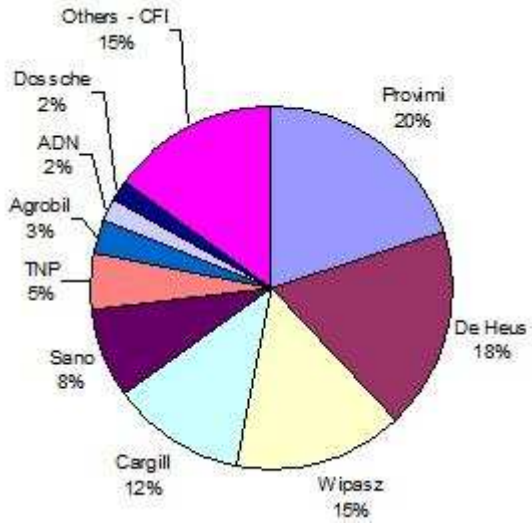
A shift can be expected concerning the five forces strength in 2013 compared to 2008. The medium strength of the *Threat of new entrants* force is expected to stray at the same level in 2013. *Threat of substitutes* was said to be absent and is not expected to change. Low *Bargaining power of suppliers'* strength is expected not to change over time. Increases are expected concerning *Competitive rivalry* and *Bargaining power of buyers* forces. Although Competitive rivalry strength will be medium over time a slight increase is expected mainly due to the fact that companies will compete more intensely for market share, the price competition might be more intense and that brand identity will become more important. *Bargaining power of buyers* is expected to strengthen from medium to high level in the coming years. According to interviewee '6' it can be caused by the fact that buyers will be better informed about the market offer, there will be fewer buyers, who will realize a large proportion of piglet feed sales and the buyer will be more price sensitive in 2013.

To summarize, although the Bargaining power of buyers force strength is expected to be high in 2013, in general, taking into account all the forces, their strength is low and medium.

Competitors' analysis

The figure below presents the competitors, with their corresponding market share, active in the piglet feed market in Poland.

Figure 15 Competitors on the piglet feed market in Poland.



Source: Based on pre-interview questionnaire

As it can be seen the market is moderately concentrated, as the concentration ratio C4 equals 65%. The market leader is Provimi, followed by De Heus, Wipasz and Cargill. Apart from the other companies that focus on the specialty products, there are many small polish compound feed producers, which have in their offer piglet feed. According to interviewee '6', this situation will not change considerably.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in Poland is presented in the table below together with corresponding weighted score for each factor.

Table 26 Weighted KSFs' scores for Poland

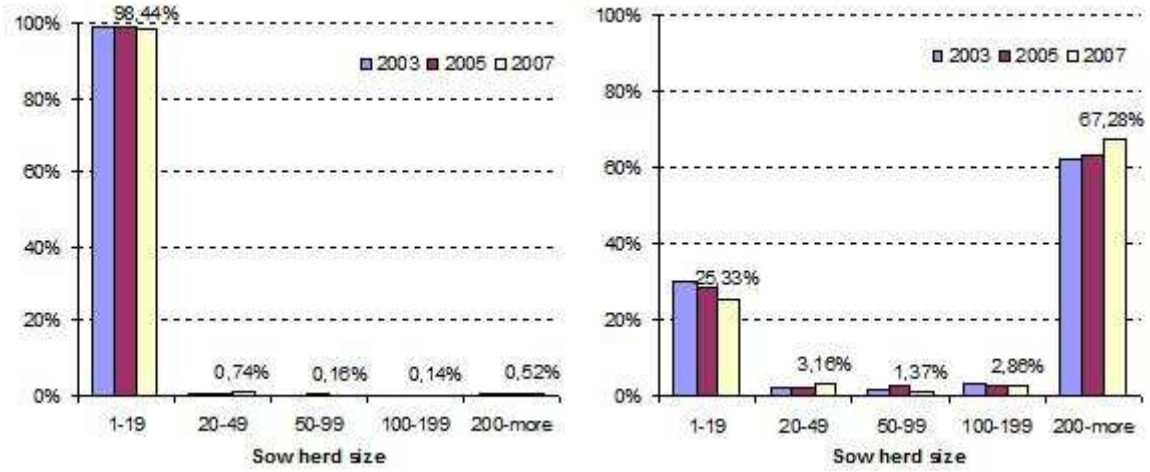
FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Quality control	5	0.2	1.0
2. Distribution	4	0.25	1.0
3. Service	3	0.5	1.5
4. Marketing knowledge of the sales force	2	0.5	1.0
5. Advertising and sales promotion	1	0.2	0.2

4.3.7 Hungary

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in Hungary. Detailed results are presented for the year 2007 (percent values).

Graph 20 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in Hungary



Source: Based on http://epp.eurostat.ec.europa.eu

In Hungary, in 2007, there were 44370 farms, which had in total 352 000 sows. Since 2003 there is a strongly declining trend in the sow population (see appendix 3).

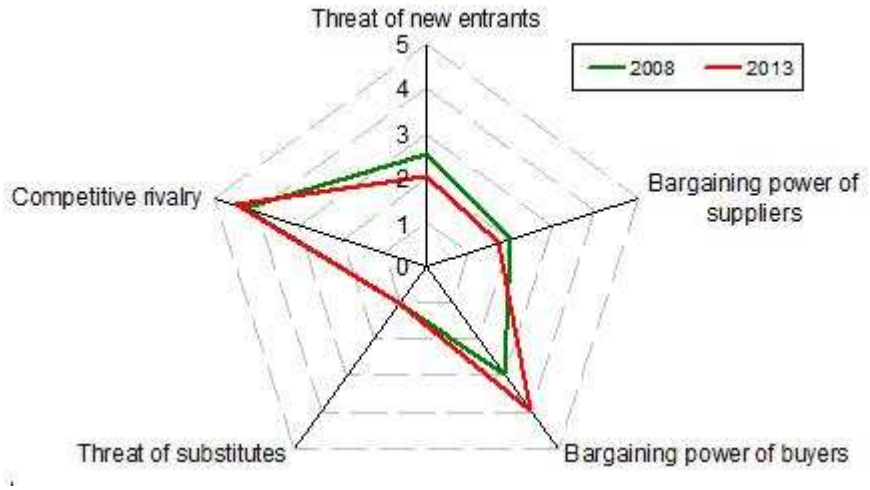
In Hungary pig production is not concentrated and approximately 98% of all farms are farms raising less than 20 sows. Approximately 25% of the sow population in 2007 was concentrated in small farms with less than 20 sows, but what is interesting more than 67% of the sow population is being raised in farms of more than 200 sows and this number is increasing.

Concerning the trends on the piglet feed market, according to interviewee '5' major trends that are expected are: decrease in the number of competitors and more imported piglet feeds.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 21 Five competitive forces over time (2008 and 2013) in Hungary



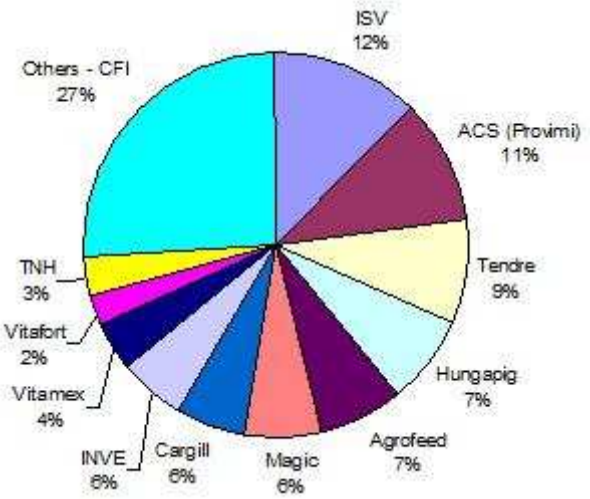
A shift can be expected concerning the five forces strength in 2013 compared to 2008. The medium strength of the *Threat of new entrants* force is expected to be medium in 2013. Although the interviewee '5' indicated the existence of substitutes, according to the definition of piglet feed (see

chapter 1) there are no substitutes to piglet feed. Therefore *Threat of substitutes* is considered to be absent and this is not expected to change. Low *Bargaining power of suppliers'* strength is not expected to change much over time. Increases are expected concerning *Competitive rivalry* and *Bargaining power of buyers* forces. Although Competitive rivalry strength will be high over time a slight increase is expected mainly due to the fact that in the future mainly foreign companies will stimulate the intensity. According to interviewee '5' on the piglet feed market there will be only foreign companies, as the national piglet feed producers will bankrupt or will be acquired by foreign firms. *Bargaining power of buyers* is expected to strengthen from medium to high level in the coming years. According to interviewee '5' it will be caused by the fact that buyers will be better informed about market offer, there will be fewer buyers, who will realize a large proportion of piglet feed sales.
To summarize, although the Competitive rivalry and Bargaining power of buyers forces; strength are expected to be high in 2013, in general, taking into account all the forces together, their strength is medium.

Competitors' analysis

The figure below presents the competitors, with their corresponding market share, active in the piglet feed market in Hungary.

Figure 16 Competitors on the piglet feed market in Hungary.



Source: Based on pre-interview questionnaire

As it can be seen the market is hardly concentrated, as the concentration ratio C4 equals 39%. The market leader is ISV, which is followed by ACS (Provimi) and Tendre and Hungapig. According to interviewee '5' there are, in total, approximately, 30 companies that sell piglet feed. In the future it is expected that this number will decrease and additionally there will be no Hungarian piglet feed production. Interviewee '5' expects that all the specialty piglet feed will be imported from Western Europe.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in Hungary is presented in the table below together with corresponding weighted score for each factor.

Table 27 Weighted KSFs' scores for Hungary

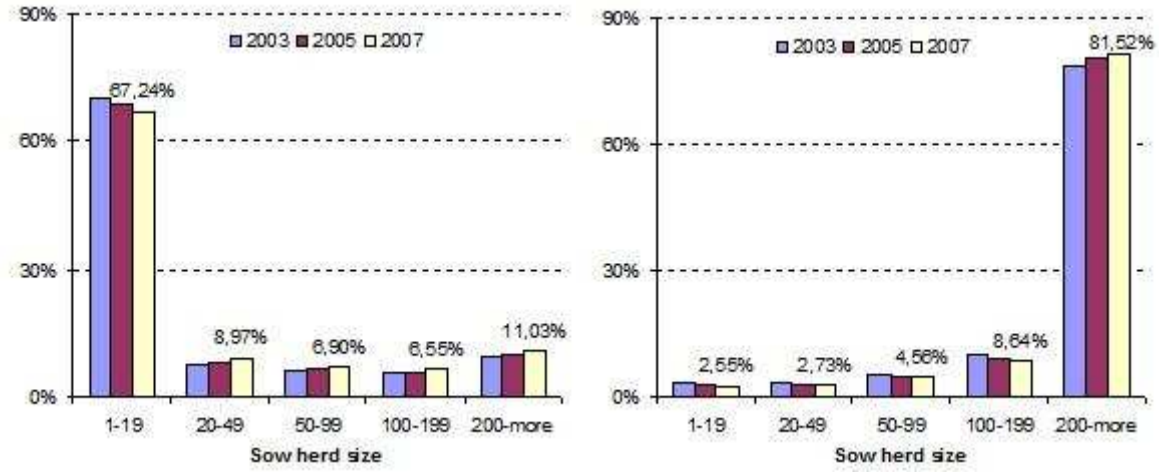
FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Product R&D	5	0.2	1.0
2. Service	4	0.5	2.0
3. Quality control	3	0.2	0.6
4. Marketing knowledge of the sales force	2	0.5	1.0
5. Advertising and sales promotion	1	0.2	0.2

4.3.8 Czech Republic

Market characteristics

The graphs below present the farm structure (left graph) and the proportions of sows – heads (right graph) depending on the size of the breeding sow herd in Czech Republic. Detailed results are presented for the year 2007 (percent values).

Graph 22 Farm structure (%) and sow heads (%) by the size of the breeding sow herd in Czech Republic



Source: Based on http://epp.eurostat.ec.europa.eu

In Czech Republic, in 2007, there were 2900 farms, which had in total 272 800 sows. Since 2003 there is a strongly declining trend in the sow population (see appendix 3).

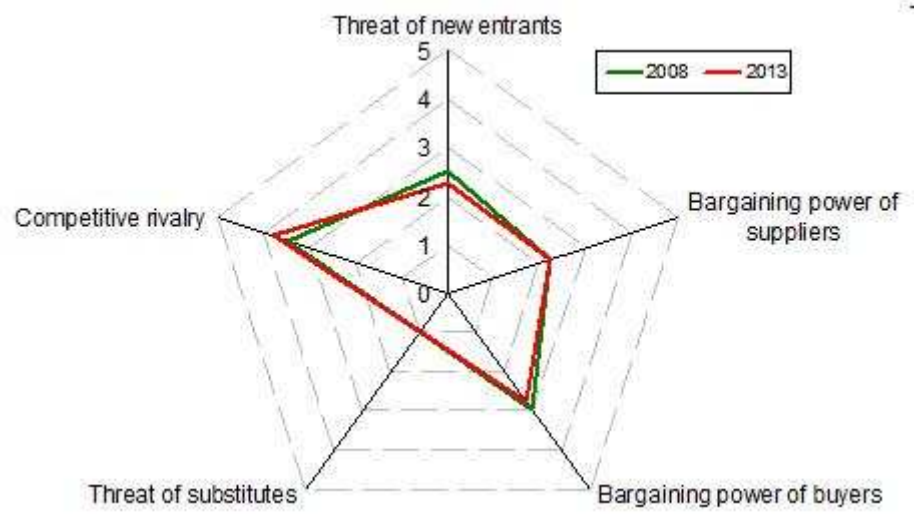
In Czech Republic pig production is not concentrated and approximately 67% of all farms are farms raising less than 20 sows. Nevertheless, the biggest proportion of sow population, almost 82%, is raised on the farms with more than 200 sows. It indicates that there are farms far exceeding 200 sow herd size.

Concerning the trends on the piglet feed market, according to interviewee '1' major trends that are expected are: increased use of prestarters and weaner feeds, and development of national piglet feed producers.

Five forces model

The results, average scores for each competitive force, are presented in the graph below.

Graph 23 Five competitive forces over time (2008 and 2013) in Czech Republic



No big differences are expected concerning the strengths of the five forces in 2013 compared to 2008. Strength of the forces: Threat *of new entrants, Bargaining power of suppliers* are expected to stay on the same, Low, level. Although interviewee '2' indicated the existence of substitutes, according to the definition of piglet feed (see chapter 1) there are no substitutes to piglet feed. Therefore *Threat of substitutes* is considered to be absent and it is not expected to change. The Bargaining power of buyers is expected to be Low in both point of time. High competitive rivalry force is expected not to change over time and remain on the same High level.

To summarize, taking into account all the forces, it can be seen that their strength is no more than medium.

Competitors' analysis

The market shares of piglet feed producers on the piglet feed market in Czech Republic are not available. Only the list of the companies active in this market is known: SKS, Dibaq, Provimi, Tekro, Profivit, Sano, Agramm, Agrofert, Mikrop Cebin, Others – CFI.

Key Success Factors (KSFs)

The list of most important factors (factor ranking from 1 till 5) in the piglet feed industry segment in Czech Republic is presented in the table below together with corresponding weighted score for each factor.

Table 28 Weighted KSFs' scores for Czech Republic

FACTOR RANKING	SCORE	WEIGHT	WEIGHTED SCORE
1. Marketing knowledge of the sales force	5	0.5	2.5
2. Service	4	0.5	2.0
3. Advertising and sales promotion	3	0.2	0.6
4. Product R&D	2	0.2	0.4
5. Know-how	1	0.2	0.2

4.4 OTHER RESULTS

One conclusion of the interviews concerned the trend of concentrating piglet production in North-West Europe and moving the pig fattening process to East EU. In order to confirm the results two experts were contacted: (1) Robert Hoste from LEI Institute, who is an expert in the field of economics in pig production, and (2) the employee of Hendrix UTD (compound feed company), who works closely with the biggest Dutch pig producers and has an overview on the trends in the EU pig production.
The main subject of both interviews were the 'The trends in the EU pig production with a focus on the sow farms (piglet production)'. Both respondents confirmed the assumption that the sow farms and piglet production are expected to concentrate in the North-West EU. They have recalled various arguments to confirm this trend, among, which the most important are:

- North-west EU has very good breeding systems,
- High quality feed is available,
- Presence of research institutes that research the improvements in pig production – piglet production is knowledge sensitive,
- Pig producers are open for developments, they want to be more efficient, which enhances the improvements in pig production,
- Economic aspects - farmers in North-West EU get more money (per sow) from banks, when establishing new farms.

It was also confirmed that the pig fattening process will move to East EU. The most important reasons for that are:

- Pig fattening is not so demanding process as piglet production (i.e. in terms of health care),
- The compound feed is widely accessible, as East EU is a big producer of raw materials needed for production of compound feed.

Detailed information from the interviews can be found in the appendix 13.

4.5 CONCLUSION

This section provides the answers to the fourth and fifth research questions.

- ❖ RQ4. What is the structure and dynamics of the piglet feed industry segment in the total sample and individual countries?
- ❖ RQ5. Do some countries possess similar characteristics?

The answers are presented in the following sections: market characteristics, five forces, KSFs and competitor analysis.

<u>Market characteristics</u>

Based on the analyses of farm structure and sow distribution the countries could have been grouped according to the shared characteristics. The first group includes Belgium, The Netherlands, Ireland and Denmark. All four countries have a high proportion of farms with more than 200 sows and a high proportion of sows in the biggest farms. The second group includes Hungary and Czech Republic with high proportion of small farms up to 19 sows and high proportion of the sow population in farms with more than 200 sows. Germany and Poland have specific characteristics of the farms structure and sow distribution over farms: in Poland the highest number of farms has less than 19 sows and the highest number of sows is found in farm with the smallest number of sows, Germany has a higher proportion of small and medium farms and the majority of the sow population is raised in farms with more than 200 sows.

Additionally a summary has been done according to the population of sows in each country in the year 2007. The ranking (from the biggest to the smallest population) is presented in the table below.

Table 29 Country's sow population ranking

COUNTRY RANKING	SOW POPULATION
Germany	2 410 000
Poland	1 587 000
Denmark	1 353 000
The Netherlands	1 060 000
Belgium	567 800
Hungary	352 000
Czech Republic	273 000
Ireland	160 000

Source: http://epp.eurostat.ec.europa.eu

Concerning the piglet feed markets trends the table below summarizes the major, expected trends.

Table 30 Major piglet feed market trends in different countries

COUNTRY	MAJOR MARKET TRENDS
B **NL** **DK** **D**	Motherless rearing Lower weaning weights – better weaner feeds Problem solving feed Specialisation of piglet feed producers
IRL	Concentrates for homemixing market Reduction of the use of zinc due to legislation
PL	Specialisation of piglet feed producers Increased production of medicated feed
HU	Decrease in the number of competitors More imported piglet feeds
CZ	Inreased use of prestarters, weaner feeds

Source: Based on the pre-interview questionnaires

Five forces

The results of five forces strengths, in the total sample and in individual countries, are summarized in the table below. The results are presented for the year 2013 as they indicated what is expected in the future and what a firm should take into account when defining a strategy.

Table 31 Strength of the five forces in the total sample and individual countries in 2013

FORCE	Total	B	NL	DK	D	IRL	PL	HU	CZ
Threat of new entrants	Low	Medium	Medium	Low	Low	Low	Medium	Low	Low
Bargaining power of suppliers	Low	Low	Low	Medium	Medium	Low	Low	Low	Low
Bargaining power of buyers	High	High	High	Medium	Medium	Medium	High	High	Medium
Threat of substitutes	Low	Low	Low	Low	Low	Low	Low	Low	Low
Competitive rivalry	High	Low	Medium	Medium	High	Medium	Medium	High	High

Note: B- Belgium, NL- The Netherlands, Dk- Denmark, D- Germany, IRL- Ireland, PL- Poland, HU- Hungary, CZ- Czech Republic

Looking at the summarized results, it was found that for the total sample (8 countries together) generally the strength of the forces is expected to be low and high in 2013. *Threat of new entrants and Bargaining power of suppliers* and *Threat of substitutes* are Low. *Bargaining power of buyers* can be expected to be the strongest force in the coming 5 years, and *Competitive rivalry* is expected to be the second strongest force in 2013 (see par 4.1, graph 6). In general, taking all the forces together it can be concluded that the market is moderately attractive.

Concerning the results per each of the analyzed countries and the strongest forces, it was found that Belgium, The Netherlands and Poland can expect a high *Bargaining power of buyers*, while the other forces are low or medium. It indicates that these will be attractive markets. Germany and Czech Republic can expect a strong *Competitive rivalry*, while the other forces are low and medium, which also indicates that these markets can be considered as attractive. Hungary can expect strong forces of both *Bargaining power of buyers* and Competitive rivalry, while other forces low and medium, which indicates that this is moderately attractive market. Finally Ireland and Denmark are foreseen to have low or medium threat of any of the forces, which indicates that they are considered as most attractive markets among the others.

Key Success Factors (KSFs)

From the initial list of 11 KSFs only 7 were chosen at least once and were a subject to further analysis. The summary of the KSFs, which presents the weighted scores for factors, in the total sample and in individual countries, is presented in the table below. The factors are listed according to the type of competitive strategy they represent (see par 2.5, figure 9).

Table 32 KSFs analysis summary

STRATEGY	FACTOR	WEIGHTED SCORE								
		Total	B	NL	DK	D	IRL	PL	HU	CZ
Operational Excellence	Distribution	0.5	0.25	0.25	0.25	0.25	1.0	1.0	--	--
	TOTAL	**0.5**	**0.25**	**0.25**	**0.25**	**0.25**	**1.0**	**1.0**	**--**	**--**
Product Leadership	Advertising and sales promotion	0.3	--	--	--	--	--	0.2	0.2	0.6
	Product R&D	0.7	1.0	1.0	0.6	0.6	0.2	--	1.0	0.4
	Quality control	0.6	0.6	0.6	0.4	0.4	--	1.0	0.6	--
	Know-how	0.6	0.8	0.8	--	--	0.6	--	--	0.2
	TOTAL	**2.2**	**2.4**	**2.4**	**1.0**	**1.0**	**0.8**	**1.2**	**1.8**	**1.2**
Customer Intimacy	Marketing knowledge of the sales force	1.6	1.0	1.0	2.5	2.5	1.0	1.0	1.0	2.5
	Service	2.0	--	--	2.0	2.0	2.5	1.5	2.0	2.0
	TOTAL	**3.6**	**1.0**	**1.0**	**4.5**	**4.5**	**3.5**	**2.5**	**3.0**	**4.5**

Note: B- Belgium, NL- The Netherlands, Dk- Denmark, D- Germany, IRL- Ireland, PL- Poland, HU- Hungary, CZ- Czech Republic

The results present the weighted scores for the KSFs, which were added according to the type of competitive strategy. In this way they show, which strategy scored most and should be chosen according to the KSFs analysis (highlighted areas). Nevertheless the results for Denmark and partly for Germany are questionable and not considered as fully reliable. The reason is that, Germany and especially Denmark have similar market characteristics to Belgium and The Netherlands, which may indicate that similar KSFs should be important. Moreover interviewees responsible for Denmark and Germany, were employees that work in The Netherlands and only represent TNI in these markets. Therefore they might not have had the full picture of the real situation on those markets. In this case the results for Denmark and Germany are adapted, according to the other characteristics representing this country's piglet feed markets. Therefore, as a result of the analysis, Denmark, Belgium and The Netherlands are countries for which the Product Leadership strategy is most appropriate, and Germany is a single country for which a combination of both strategies: Product Leadership and Customer Intimacy, should be applied. The results of the KSFs analysis for the other countries, indicate that Customer Intimacy should be the leading strategy.

Competitors' analysis

The table below presents the concentration ratios C4 for each country. The results are presented according to the decreasing ratio, showing the most concentrated markets to the least.

Table 33 Concentration ratios for eight countries

	IRL*	B	DK	PL	NL	HU	D	CZ*
Concentration ratio -C4	100%	84%	75%	65%	40%	39%	25%	--

Note: B- Belgium, NL- The Netherlands, Dk- Denmark, D- Germany, IRL- Ireland, PL- Poland, HU- Hungary, CZ- Czech Republic
* IRL – only 3 competitors, CZ – data not available

Additionally, based on the list of the four biggest producers in each country, an analysis was conducted to show the biggest players on the piglet feed market, which are present in more than one country.

Table 34 Four leading piglet feed producers

	IRL	B	DK	PL	NL	HU	D	CZ
Provimi	2	--	--	1	3	2	1	3
Trouw Nutrition	--	1	--	--	1	--	--	--
Denkavit	--	--	--	--	2	--	3	--
Vitamex	--	3	--	--	4	--	--	--

Note: Numbers 1 to 4 indicate the position of a company on a market (according to market share)

Provimi is one of the biggest players on the piglet feed market, and has a high position in six out of eight analyzed countries. Based on the pre-interview questionnaires, it has been found that Provimi products are of a very high quality, are innovative, and their prices are expensive. Trouw Nutrition is a leader on the Belgian and Dutch markets. Other two important players are Denkavit and Vitamex.

5. CONCLUSIONS

This chapter concludes on the results and analysis of collected data and provides the answer the main research question:

What are the appropriate competitive strategies for Trouw Nutrition International (TNI) to apply in the piglet feed industry segment in the different EU-25 countries, according to its market characteristics and structure and dynamics?

Before answering the general research question, answer to sub-questions will be shortly presented:

- **RQ1.** What tools and concepts from Industrial Organization and Strategic Management literature may constitute a framework of industry analysis (according to its characteristics)?
  - The tools and concepts that are used in this study are: (1) Porter's five forces model, (2) Key Success Factors (KSFs) and (3) Comparative industry structure analysis. The theoretical framework, based on these concepts, which is used in the empirical part, can be found in the Figure 9 (see par. 2.5).

- **RQ2.** What are, according to scientific literature on Strategic Management, the possible competitive strategies to apply, according to the industry structure and its dynamics, in order to achieve competitive advantage over rivals?
  - Literature provides numerous competitive strategy classifications that can be applied. This research has chosen the strategy classification of Treacy and Wiersema (1995), who distinguished three main generic competitive strategies. They are: (1) Operational excellence, (2) Product leadership and (3) Customer intimacy (see par. 2.4)

- **RQ3.** What data sources and data collection method will be used in the empirical part of the research?
  - <u>The data sources that are used are:</u>
    - (1) Documents and media – from European Union institution: Eurostat, which is the statistical arm of the European Commission and FEFAC (European Feed Manufacturer's Federation)
    - (2) People – 8 employees from TNI company in different countries and 2 Dutch experts from different parts of the pig and piglet feed industry. This was below the ambition but it was hard to raise it due to the fact that other feed companies were not interested in the taking part in the research.
  - <u>The data collection method consist of two elements:</u>
    - (1) Pre-interview questionnaire – which was a semi-structured document, aimed at gathering upfront information about the piglet feed markets in different countries.

- (2) Interview – which was supported with the structured interview document. The goal of the interview was to gather structured data, which could be compared between countries of interest.

❖ **RQ4.** What is the structure and dynamics of the piglet feed industry segment in the total sample?
  - ➢ The market structure and dynamics in the total sample indicate that in 2008 the forces that shape the piglet feed industry segment were low and medium, and it is expected that by 2013 only two of those forces are expected to change: *Bargaining power of buyers* and *Competitive Rivalry* (see par 4.1 graph 6). Concerning the KSFs the most important are those that relate to the Customer Intimacy strategy, and secondly the factors related to Product Leadership (see par 4.4 table 31).

❖ **RQ5.** What is the structure and dynamics of the piglet feed industry segment in individual countries and do some countries possess similar characteristics?
  - ➢ Based on the analysis of five forces The Netherlands and Poland can expect a high *Bargaining power of buyers*, while the other forces are low or medium. It indicates that it these attractive markets. Germany and Czech Republic can expect a strong *Competitive rivalry*, while the other forces are low and medium, which also indicates that these markets can be considered as attractive. Hungary can expect strong forces of both *Bargaining power of buyers* and Competitive rivalry, while other forces low and medium, which indicates that this is moderately attractive market. Finally Ireland and Denmark are foreseen to have low or medium threat of any of the forces, which indicates that they are considered as most attractive markets among the others.
  - ➢ Based on the analysis of KSFs in Belgium, The Netherlands, Denmark factors representing the Product Leadership strategy were found to be most important. In Ireland, Poland, Hungary and Czech Republic factors representing the Customer Intimacy strategy were found to be most important. In Germany the factors which were found most important relate to both strategies.

After having all the sub-questions answered the answer to the main research question is provided.

What are the appropriate competitive strategies for Trouw Nutrition International (TNI) to apply in the piglet feed industry segment in the different EU-25 countries, according to its market characteristics and structure and dynamics?

In accordance to the theoretical framework (par. 2.5, figure9) conclusions will be given concerning the most appropriate competitive strategies for the total sample of countries and for each of the analyzed countries. As the model indicates the choice for a strategy will be based on the five forces model and Key Success Factors (KSFs) analysis. In the case of the strategies for individual countries also other market characteristics will be taken into account.

Total sample

Concerning the total sample it has been found that the strength of three out of the five forces is Low (*Threat of new entrants, Bargaining power of suppliers* and *Threat of substitutes*), while two others are High (*Bargaining power of buyers* and *Competitive rivalry*). The market can be considered as moderately attractive, as not all the forces' strengths are high. According to the theoretical model, when the strength of the forces is not High, the most appropriate strategies to apply are Product Leadership and Customer Intimacy. From the KSFs results and analysis it has been found that the most appropriate strategy to apply is Customer Intimacy, and secondly Product Leadership.

Individual countries

Based on the analysis of the five forces, KSFs and after taking into account the market characteristics the countries could be divided into three groups and appropriate strategies for those groups were chosen. The table below presents the groups of similar countries and the appropriate strategies recommended for each group. The emphasized strategies are prioritized.

Table 35 Recommended competitive strategies for different countries

COUNTRY	LEADING/FOLLOWING STRATEGY
B **NL** **DK**	**PRODUCT LEADERSHIP** / CUSTOMER INTIMACY
D	**CUSTOMER INTIMACY + PRODUCT LEADERSHIP**
IRL **PL** **HU** **CZ**	**CUSTOMER INTIMACY** / PRODUCT LEADERSHIP

The first group includes Belgium, The Netherlands and Denmark. Those countries have similar market characteristics with a high concentration of farms. Moreover, it was found that the farmers are focused mainly on the quality and innovativeness of the products, and the pig production management is already developed. Therefore, an appropriate strategy to apply on those markets is Product Leadership. Customer Intimacy can be a supporting strategy to build the relations with farmers and to provide them with services and advice on how to solve the specific production problems.

Germany (the KSFs results are not considered as fully reliable) is the second individual group, due to its market characteristics and size – it is the biggest market at the moment, concerning the number of sows, but is not yet as concentrated as the countries presented in the first group. An appropriate strategy to apply on the German market would be a combination of Customer Intimacy and Product Leadership.

The final group includes Ireland, Poland, Hungary and Czech Republic. For those countries the Customer Intimacy strategy has been found to be most appropriate. Even though, the market characteristics were not fully similar in all the four countries, the KSFs analysis clearly indicates that the focus in those countries should be on building closer relationships with farmers, aiming mainly at advising on how to use the products and how to improve the pig production process and how to make the production more efficient.

6. RECOMMENDATIONS AND DISCUSSION

The objective of this part of the study is to give recommendations for a company that commissioned this project and to evaluate the research, which aims at discussing the methodology used and the results that were found and the limitations of the study.

6.1 RECOMMENDATIONS

The recommendations are given for a company and for a further research. They are presented in points, which are not listed according to the importance.

6.1.1 For company

Due to confidentiality matters this section cannot be presented. It is available only fot TNI and supervisors of this research project.

6.1.2 Further research

- Analyzing the situation in the remaining EU countries and comparison of the results with the current study would provide a fuller view of the piglet feed market in Europe,
- Consulting other companies and especially farmers would provide additional perspective on the problem and would compare the view point of the industry with the real needs of the farmers,
- Use of other data collection methods, like open-ended questionnaire, could provide more information not only on the trends and changes, but also on the reasons for the current and future developments market situations,
- Taking into account other market aspects, i.e. a more detailed analysis of competitors, and collecting more information on and from the farmers, could improve and make the conclusions stronger.

6.2 DISCUSSION

Several limitations of the current study need to be addressed.

The number of chosen countries might not represent the situation in all the European countries. Different countries mean different market characteristics and the results found for the selected groups cannot be generalized over the whole European piglet feed market. The present study shows that it is hard to find one strategy which could be applied on the whole European market. Therefore a company should seek for multinational strategy.

The number of interviewed persons, and especially the number of persons interviewed per country, caused only a one-side perspective on the market situation in all countries. The other limitation concerning the interviewed people is that respondents representing Danish and German markets were employees from the Dutch plant, and only operate in these markets. Therefore they might not have had a neutral overview of the situation. Additionally, one interviewee per country gives a risk of

personal opinions rather than objective market analysis. A higher number of respondents per country could provide an opportunity to confront the data from different people and draw stronger conclusions.

Data was gathered from only one company, which may cause, that all the interviewed persons had a common vision which is promoted by the company's culture. Including more companies would not only provide more information and data, but would also give a wider view on the piglet feed market. The position of the interviewed employees might also have influences the type of provided information and the depth of the information.

The applied methodology, triangulation of data collection (people, documents and media), pre-interview questionnaire and interview questionnaire, was consistently used throughout the project, meaning that the information was gathered in the same manner. However, the type of the used interview document might have been a limitation. A closed-structured interview questionnaire was used for this study, which caused that interviewees were not asked to provide reasons for their answers and no additional information, which might have been relevant, was collected.

Concerning the analysis of KSFs, the number of factors per strategy was not equal, therefore the probability of choice of a factor was not equal across strategies. This caused a need for assigning weights to the factors, which influenced the results of the analysis.

The analysis was conducted only from the perspective of the company and the results were not confronted with the view and needs of the buyers.

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APPENDIX 1 - INVENTORY OF IMPORTANT ATTRIBUTES IN MATURE INDUSTRIAL-PRODUCT SECTOR (Vasconcellos & Hambrick 1989)

Information and communication

1. *Image* (goodwill, prestige, reputation). (The extent to which the name of the organization creates a generally positive attitude in the minds of the customers)
2. *Technical knowledge of the sales force.* (Ability to advise customers what is technically feasible; ability to evaluate the capacity of the organization to meet the technical requirements implied by the customer's needs)
3. *Marketing knowledge of the sales force.* (Ability to persuade customers, knowledge of marketing and buyer behavior; knowledge of the customer's needs and values)
4. *Advertising and sales promotion*

II. Product

5. *Product research and development* (activities directed towards modifying, improving, adding new features to, and developing new products)
6. *Service* (installation, coaching the customers in using the product, and repairs)

III. Product cost

7. *Process research* (engineering activities directed toward efficiencies in the way the products are manufactured)
8. *Firm size* (to exploit economies of scale)
9. *Customer financing* (financial arrangements offered by the organization to customers in order to increase their purchasing power or facilitate the terms of sale)

IV. Product delivery

10. *Distribution* (transportation, warehousing, and expediting). (Ability to maintain low distribution costs and to assure that deliveries are made on the right dates and in the right quantities)
11. *Location of manufacturing facilities* (efficient proximity to market; to transportation means; or to raw materials and labor)

V. Production

12. *Technical skills of manufacturing workforce* (technical skills and level of expertise of workforce in the manufacturing plant)
13. *Quality control* (ability to maintain uniformly high level of output quality)
14. *Production management* (efficient planning and routinization of workflow and tasks in the manufacturing department, and of cost control system in that same department)
15. *Purchasing* (ability to obtain access to low-cost or reliable sources of inputs)
16. *Labor relations* (few stoppages and interruptions in plant production; low level of turnover, lateness and absenteeism)
17. *Technical sophistication of the equipment* (extent to which the equipment and machinery used in manufacturing plant is up to date)

APPENDIX 2 – CASE STUDY PROTOCOL

The case study consisted of two main elements: (1) semi-structured, pre-interview questionnaire and (2) interview with the use of structured interview document.

PRE-INTERVIEW QUESTIONNAIRE

Please fill in the following items:

Name: Email: Country: Date:

Introduction

Thank you for accepting a possible interview for this research. The goal of this document is to clarify the background of this research project, to gather upfront information, and to help you and us to prepare for an efficient interview, to be executed in January or February 2009. The exact date and time of the interview will be arranged as soon as possible.

Background

Why this project and why this questionnaire? The reason is to find how the **PIGLET FEED** industry segment works in **your country** as an input to find the answer on how Trouw Nutrition International should be **organized in this segment**. This research is executed by Tomasz Kretowski on behalf of Dirk Desmet and TNI.

By the **PIGLET FEED** industry segment **it is meant**: the industry that offers the full range of feed products for piglets: until 2 weeks after weaning (complete feeds) and concentrates for the link period. The products are based upon high quality dairy ingredients or same quality vegetable replacements of these ingredients.

Instruction

This questionnaire discusses the structure and the dynamics of the piglet feed industry segment exclusively in your country. It covers 7 areas: Part 1 – Feed market conditions, Part 2- Rivalry on the market, Part 3 – Barriers of entry to the market, Part 4 – Substitutes of piglet feed, Part 5 – Customers on the market, Part 6 – Suppliers of raw materials and Part 7 – Trouw Nutrition country self assessment.

Some of the questions contain additional explanation (*at the end of the question, written in brackets, and smaller italic font size*) on how to answer them. To be able to answer specific questions, you may have to do some quick background search, or speak with some of your local colleagues.

However, you might possibly conclude that there are some questions that you cannot answer now, that need more in depth research. In that case please **indicate/mark** that question by writing a word **'interview'** in the answering area. Evidently, we ask you to do the necessary in depth research, to be able to answer 'that' question during the projected interview, early 2009. Moreover, the interview will cover some additional aspects of the piglet feed industry segment.

To the best of your ability, please try to complete this questionnaire about your piglet feed industry segment and return it **by email** (to both tomasz.kretowski@nutreco.com and dirk.desmet@nutreco.com) **ultimately by 15th January 2009.**

As the questionnaire is sent in the digital version, do not hesitate to use more space for answering the questions than is provided. We would like to thank you for your time and effort.

PART 1 – FEED MARKET CONDITIONS

In the tables below you can see data on animal pig population in your country and on compound feed production for pigs in total and piglets. Please have a look at this data and answer following questions.

Population (1000 heads)	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008** August
Pig total									
Piglets (less than 20kg)									
Sows total									

Source: http://epp.eurostat.ec.europa.eu

Compound feed production (1000t)	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008** forecast
Pigs total									
Piglets (less than 20kg)									

Source: http://www.fefac.org

1. **What are the main reasons for decrease in pig population (in different presented groups) in presented years?** *(please state 3-5 reasons).*

2. **What are the main reasons for rather stable piglet feed production, despite the decrease in piglet population, in presented years?** *(please state 3-5 reasons).*

3. **Please fill in the table below, which deals with the farm structure, in your country, depending on sow number in the following years: around 2000, 2007 or 2008 and forecast for 2014** *(if you can't find the data please make an estimation).*

FARM STRUCTURE (%)			
Sow number:	**2000**	**2007/2008**	**2014** *(forecast)*
< 10			
10 - 19			
20 - 49			
50 - 99			
100 - 199			
200 - 499			
500 - 999			
1000 - 4999			
5000 - more			
	100%	**100%**	**100%**

4. **What is the feed conversion ratio (= a measure of an animal's efficiency in converting feed mass into increased body mass) for piglets and the amount (kg) of feed consumed, in each stage of their transition process, in your country?**

PHASE	**PRE-WEANING**	**STARTER** (waener feed)	**TRANSITION** (link feed)
Ratio			
Feed consumption (kg)			

5. **What major changes/trends/developments do you foresee/expect in the piglet feed industry segment in your country in the coming 5 years (till 2013). State the 5 most important items.**

PART 2 – RIVALRY ON THE MARKET

6. **In what stage is the piglet feed industry segment in your country? How would you describe it?** *(please encircle the chosen answer)*
   a. growing rapidly,
   b. growing,
   c. maturing,
   d. declining,
   e. declining rapidly;

7. **Which competitors are present on the piglet feed industry segment in your country?** *(Mention them in the table below, according to the market share -from the highest to the lowest- and fill in additional column)*

Rank	**Company**	**Estimated market share in piglet feed**	**Estimated sales volume in piglet feed**
1.			
2.			
:			

   a) Is the number of competitors changing? What is the trend?

8. **Based on the information from the table above please fill in the tables below about the top 5 companies on the <u>piglet feed</u> market in <u>your country</u>.**

1.	**Company name…** *(please fill in)*	
PIGLET FEED PORTFOLIO *(state what products does this company have in the three main piglet feed category groups)*	**Creep feed**	
	Weaner feed	
	Concentrates	
UNIQUE CONCEPTS *(state what makes this company and its products unique)*		
PRICING STRATEGIES *(state this company's pricing policies: are their products expensive or cheap comparing to the industry average?)*		
SALES CHANNELS *(state what type of sales channels this company uses)*		
ADVERTISING *(state what kind of promotion this company uses to be seen on the market)*		
STRENGTHS (*state* what are the main strengths of this company, mention 3-5)		
WEAKNESSES (*state* what are the main weaknesses of this company, mention 3-5)		

9. **What are the prime opportunities and threats at this moment in the piglet feed industry segment for companies active in this segment?** *(please fill in the table below, mention 5-7 most important opportunities and threats).*

PIGLET FEED INDUSTRY SEGMENT	
OPPORTUNITIES	**THREATS**

PART 3 – BARRIERS OF ENTRY

10. **What is necessary for a feed company to become successful in the piglet feed industry segment, the socalled critical success factors (CSF)?** *(please mention 5-7 of them according to their importance).*

11. **How important is the brand in the piglet feed industry segment? How large is the impact of a brand?**
    a) brand identity strong enough to have a loyal group of customers? Is Why?
    b) Which types of customers are influenced by brand?

12. **How easy can a customer switch to another supplier (producer) of piglet feed? If any, what are the costs associated with it?**

13. **What are the main reasons/drivers to change the piglet feed supplier?** *(please mention 3-5 reasons).*

14. **Who or what has the biggest influence on the customers' product choices?** *(Please mention up to 5 influences).*

15. **What is the share (%) of all customers' purchases of piglet feed products via different sales channels, on the market in your country? What is the average volume ordered per channel?** *(please fill in the table below, if you do not know the exact data, please make an estimation).*

CHANNEL	SHARE		AVERAGE VOLUME/order
B2B (business-to-business)		**%**	
B2D (business-to-distributor)		**%**	
B2F (business-to-farm)		**%**	
	100	**%**	

16. **What is the typical buying process of piglet feed products by customers (e.g. how much time does it take, do they negotiate, need contracts, etc.)?**

17. **Are there any other factors in the industry that protect against the entrance for new players (i.e. policy or government regulations, etc.)?**

PART 4 – SUBSTITUTES

18. **If any, what are the substitutes to piglet feed branded products?** *(please make a short description)*

19. **How sensitive is the demand for piglet feed products to price changes of those substitutes?** *(please encircle the chosen answers).*
    a) Yes
       - Dramatically
       - Significantly
       - Moderatly
       - Slightly
    b) No

20. **How sensitive is the demand to price changes by competitors? Say when the price of a direct competitor falls 2 percent how much would your sales drop?**

21. **How strongly are you involved in selling non-branded substitutes?**

PART 5 – CUSTOMERS

22. **Do your customers have substantial power in price negotiations?** *(please encircle the chosen answer).*
    a) Yes
    b) No

23. **If YES, what makes them powerful?** *(please mention 3-5 reasons).*

24. **Where, or from whom, do customers have an access to information necessary to compare prices and features of competitive products?** *(please mention 5-7 sources).*

25. **How important is the price in negotiations with customers?** *(Please highlight the chosen answer).*
    a) predominant
    b) quite important
    c) moderately important
    d) not at all important

26. **What type of feed do the customers buy (complete feed or concentrates) in each stage of the transition process?** *(Please fill the table below using %).*

PHASE	PRE-WEANING		STARTER		TRANSITION	
	CREEP FEED		STARTER FEED		LINK FEED	
COMPLETE FEED		%		%		%
CONCENTRATES		%		%		%
	100	%	100	%	100	%

27. **Fill in the table with the information about current top 5, current, Trouw Nutrition customers in your country** *(take sales to them as indicator)***.**

CUSTOMER	END USER or CHANNEL	ESTIMATED VOLUME	% OF SALES

28. **Fill in the table below with the top 20 buyers (customers and potential customers) that are present on the piglet feed market in your country.**

N.	CUSTOMER / Company name	TYPE / farm, distributor, etc.	NEEDS/ Volume	WHO SUPPLY NOW? *(company name)*
1				
2..				

PART 6 – SUPPLIERS

Please answer these questions according to you knowledge about the supply side of the feed industry in your country.

29. **Do your competitors have any problems with suppliers of raw materials? Do raw materials' suppliers have any power in negotiations?** *(please encircle the chosen answer).*
    a) Yes
    b) No
30. **If YES, what makes them powerful?** *(please mention 3-5 reasons).*

31. **Other remarks…**

PART 7 – TROUW NUTRITION COUNTRY SELF ASSESMENT

32. **Fill in the table with the strengths and weaknesses of Trouw Nutrition company in your country, having in mind piglet feed products** *(please mention 5-7 most important strengths and weaknesses).*

TROUW NUTRITION	
STRENGTHS	**WEAKNESSES**

33. **What are the needs of customers concerning piglet feed products that Trouw Nutrition in your country can not currently meet and therefore can not satisfy its customers?** *(please mention 3-5 factors).*

34. **What can be done to improve the position of Trouw Nutrition on the piglet feed market in your country?** *(please mention your ideas in points and describe them).*

INTERVIEW DOCUMENT

INTRODUCTION

The preceding questionnaire that we have asked you to fill in gave us upfront information about the market situation in your country. We appreciate your effort and help. At the moment we need more structured information about the **PIGLET FEED** market in **YOUR COUNTRY**. It will allow us to compare results between different countries, which are covered by our analysis. Therefore we have created this file with **2 PARTS** of topics to discuss.

PART 1 is divided into: new competitors, suppliers, buyers, substitutes and competition. Taken together they represent the competitive situation on the market. While discussing each part, we would like to ask you to indicate the 'strength' of a particular sentence in two time points: (1) Currently – 2008/09 and (2) In 5 years – 2013/14. You can make the choice on the five-point scale ranging from:

To no extent	----------	----------	----------	To very great extent
1	2	3	4	5

	NEW COMPETITORS	2008/09					2013/14				
1	Small scale entrants face considerable cost disadvantages (high cost per unit of product)	1	2	3	4	5	1	2	3	4	5
2	Large financial resources are required to start piglet feed production (i.e. R&D)	1	2	3	4	5	1	2	3	4	5
3	New entrants risk strong reaction from existing companies	1	2	3	4	5	1	2	3	4	5
4	New entrants will find it difficult to persuade distribution to accept their products	1	2	3	4	5	1	2	3	4	5

	SUPPLIERS	2008/09					2013/14				
5	Suppliers are powerful	1	2	3	4	5	1	2	3	4	5
6	Suppliers can raise prices or reduce quality independently	1	2	3	4	5	1	2	3	4	5
7	Small number of suppliers sell a large proportion of inputs	1	2	3	4	5	1	2	3	4	5
8	Suppliers can easily realize include piglet feed production into their business	1	2	3	4	5	1	2	3	4	5

	BUYERS	2008/09					2013/14				
9	Buyers are well informed about different products' characteristics	1	2	3	4	5	1	2	3	4	5
10	Small number of buyers realize a large proportion of sales	1	2	3	4	5	1	2	3	4	5
11	Buyers are very price sensitive	1	2	3	4	5	1	2	3	4	5
12	Buyers of products are other market actors, which can influence the final consumer's purchase decision	1	2	3	4	5	1	2	3	4	5

	SUBSTITUTES	2008/09					2013/14				
13	There are many substitutes for piglet feed products	1	2	3	4	5	1	2	3	4	5
14	There is a strong competition from substitutes	1	2	3	4	5	1	2	3	4	5
15	There are substitute with a better price-performance ratio	1	2	3	4	5	1	2	3	4	5
16	Buyers easily switch to new products-substitutes	1	2	3	4	5	1	2	3	4	5

	COMPETITION	2008/09					2013/14				
17	Firms in our industry compete intensely to hold and/or increase their market share	1	2	3	4	5	1	2	3	4	5
18	Price competition is highly intense	1	2	3	4	5	1	2	3	4	5
19	Brand identity is very important	1	2	3	4	5	1	2	3	4	5
20	Foreign firms stimulate the intensity of the competition	1	2	3	4	5	1	2	3	4	5

PART 2 is a list of factors (with descriptions) that might be important for a company to be successful in the piglet feed market. The question here is to **choose 5 most important** factors and **rank them from 1 to 5**.
Any additional factors, which can be relevant, please add to the factor list.

FACTORS	DESCRIPTION	RANKING
Image	the importance of the brand and company reputation, which should create a positive attitude in the minds of customers of piglet feed products	
Marketing knowledge of the sales force	ability to persuade customers to buy piglet feed products, knowing the needs and values of customers	
Advertising and sales promotion	being present on fairs, in magazines, etc. Promote piglet feed brands	
Product research and development (R&D)	constantly modifying, improving the piglet feed products, adding new functions (i.e. problem solving feed) and developing new kind of feeds	
Service	ability to advice customers on how to use piglet feed products, support in the area of piglet production (i.e. what feeding programs to use, how to solve the disease problems, etc.)	
Firm size	to exploit economies of scale, having lower cost per unit of piglet feed	
Distribution	ability to maintain low distribution costs and assure that the deliveries are made on time with the right volumes	
Location of manufacturing facilities	closeness to market; to transportation means; or to raw materials and labor	
Quality control	ability to maintain constant, reliable, high quality level of feed products	
Purchasing	ability to have access to low-cost or reliable sources of inputs, i.e. raw materials needed to produce piglet feed	
Know-how	technological knowledge needed to be able to produce piglet feed	
…… ……		
…… ……		

APPENDIX 3 – SOW POPULATION and PIGLET FEED PRODUCTION

Sow Population (1000 heads)	2003	2004	2005	2006	2007	2008
Belgium	617.7	607.7	583.8	578.0	566.8	511
The Netherlands	1052.0	1125.0	1100.0	1050.0	1060.0	955
Denmark	1424.0	1397.0	1340.0	1414.0	1353.0	1219
Germany	2563.9	2466.8	2503.6	2467.4	2417.8	2173
Ireland	175.6	178.7	174.4	166.9	160.2	144
Poland	1704.7	1648.5	1808.1	1786.4	1587.4	1431
Hungary	430.0	391.0	383.0	396.0	352.0	318
Czech Republic	371.0	335.0	338.0	316.6	272.8	246

Source: http://epp.eurostat.ec.europa.eu

Piglet Feed Production (1000t)	2003	2004	2005	2006	2007	2008
Belgium	761	766	786	772	799	750
The Netherlands	694	-	689	758	830	805
Denmark	656	692	678	643	663	-
Germany	1443	1490	1421	1628	1763	-
Ireland	96	96	82	-	-	-
Poland	-	-	-	-	-	-
Hungary	-	-	-	-	-	-
Czech Republic	-	-	-	-	-	-

Source: http://www.fefac.org

APPENDIX 13 – INTERVIEW WITH ROBERT HOSTE - LEI INSTITUTE RESEARCHER

Robert Hoste field of expertise is agricultural economics with the strong focus on all the aspects of pig production economies.

The main theme of the discussion: The trends in the EU pig production with a focus on the sow farms (piglet production) – situation in the EU countries.

European Union as a whole is self sufficient concerning the pork meat production. The self-sufficiency is on the level of 106%, which indicates that there is also some export outside EU (i.e. to Japan, Korea, Russia, etc.)

Europe can be divided into three regions concerning pig production:

I. North-West (i.e. The Netherlands, Denmark, Belgium, Germany …)
a. self-sufficient
b. intensive pig production
c. economies of scale – well-developed
d. developing very fast in production efficiencies

e. main countries producing piglets for export: The Netherlands (NL) and Denmark (DK)
   i. both countries export piglets mainly to Germany (D), which demand for piglets is currently (2008) around 5.0 million piglets/year (2008) and it is expected to grow in to 10.0 millions (2015) (5.0 million increase)
   ii. NL's currently (2008) export of piglets to D is around 2.4 million piglets/year, the rest come from DK
   iii. NL's export in general is on the level 5.0 million (2008) and is expected to grow to 7.0 million (2015) (2.0 million increase)
   iv. DK's export in general is on the level 3.8 million (2008) and is expected to grow to 7.8 million (2015) (4.0 million increase)
   v. From the figures in the previous points it can be seen that NL's and DK's total increase in number of piglets will grow to 6.0 million (2015), which indicates that both countries can fully cover the D's increase in demand (5.0 million in 2015) and 1.0 million piglets will be a surplus

   DK has stricter regulations (than EU and other countries) concerning piglets (treatment, transport, etc.), which is seen better by the piglet imprting countries. The export of piglets is mainly to Germany (90%) and Poland and other CE countries (10%).

   NL exports more (in total number) piglets, but only around 50% is going to the main export market, which is Germany. Around 20% is going to Spain, 10% to Belgium + Luxemburg, 7% to Italy, 5% to Poland, 3.6% to Hungary, and the rest to other countries.

II. Central-East (i.e. Poland, Czech Republic, Slovakia, Romania, Hungary,…)
a. not very efficient production
b. but access to quite cheap raw agricultural materials, i.e. cereals, which can be used in fattening process

c. Poland (PL):
   i. Has a good bases for becoming big meat processor and exporter of meat
   ii. There are three big pig organizations: Smithfield (American), Duda (Polish) and Pol-Danor (Danish, which is owned by 60 Danish pig producers)
   iii. Piglet productivity is very low, around 17-18 piglets/sow, whereas in NL or DK it is around 25,5 and is constantly increasing (in NL of 0,45 and in DK of 0,63)
   iv. Productivity in fattening is not that low comparing to Western countries
   v. General problem is that farmers do not like compare their production results with others (do not benchmark)

d. Hungary (H)

i. In general pig production is struggling because of the retail sector, which is very strong in Hungary (pig producers are not able to adopt to the retail requirements and therefore the prices they get are low)
ii. There are high costs of production
iii. Hungarian farmers do not trust feed companies

e. Czech Republic (CZ):
i. Had a good breeding system during the communism time
ii. When the communism collapsed the market prices went drastically down and the breeding system collapsed
iii. Pig sector is not that important in the country

III. South + UK (Spain, Portugal, Italy, Greece, UK)

a. Well developed countries, which are not self-sufficient in pig production, which means that they import pork meat

b. Spain (ES):
i. Normally it is self-sufficient, but during the summer period they import pig meat (barbeque season)

c. Italy:
i. It is self-sufficient in 80-85%
ii. It is independent to market movements, because it is a special market, which has a specialty meat products

d. United Kingdom:
i. It is self-sufficient in 60%

Conclusion:

Piglet production will stay in North-West EU, mainly The Netherlands and Denmark

The reason for:

- Good breeding systems in these countries
- High quality feed – availability
- Presence of very good knowledge and advisory institutes, good craftsmanship
- Farmers are open for improvement and benchmarking (not like in Poland)
- Piglet production become very efficient due to competition (surviving)

Risk:

- Disease problems –if there is any disease it can 'attack' the countries where the piglet production is concentrated. Then, according to the actual EU law, borders of such a country are closed, which may cause problems for importing countries. Therefore now EU works on the law, which will not close the border of such a country, but will define the region and the region will be closed.

APPENDIX 14 - INTERVIEW WITH HENDRIX UTD EMPLOYEE

The main theme of the discussion: The trends in the EU pig production with a focus on the sow farms (piglet production) – situation concerning Dutch farmers.

1. Currently there are around up to 10 Dutch farmers that moved their sow production to Eastern Europe.
2. In NL there are 390 farmers, which have more than 700 sows. There are three main groups of farmers:
   2.1. with technical skills (up to 700 sows, due to lack of human management skills)
   2.2. entrepreneurs
   2.3. managers – only 30 out of 390
3. Dutch farmers does not want to move to other countries to run the farms, they prefer to stay in NL and manage the farms from NL
4. Transportation time for piglets is limited to 8 hours (EU plan to increase it to 10 hours)
5. Although the sow population is decreasing, piglet population should not be influenced due to increase in the litter's size per sow. (approximately 0,3-0,4 piglet per year per sow)

Assumption is that probably the sow and piglet production will stay in the North-West EU, due to:

1. Banks reluctantly finance the projects and require additional conditions
   1.1. mother company has to stay in NL, otherwise 'no money'
   1.2. require higher returns (%) per sow (from 7.5 till 12.5)
2. In NL farmers get much more money per sow (2000-2500euro) and per fattener (400euro). They will not get that amount of money in other countries (for example in eastern Germany they get only 1000 euro per sow).
3. Building costs are higher in the Eastern Europe, due to special building constructions, which are required (snow problem)
4. The labor costs are not that low as it may seem (they need to be at least half of these that are paid in the west. In fact they are
5. Farmers can get better price for weaned piglets in NL (if they keep them one week more (to 10 weeks) they get 9 euro extra, which increases theirs profits).
6. The sow number in NL will not decrease significantly due to farmers who will resign from sow production in NL (due to 2012 EU stable and emission regulations).The bigger farmers will build new stables (good environmental benefit) and take over the sows from "old farmers", which in fact will cause that the sow production will stay in NL