



"The New International Structural Stages Model"

-The Structural Process of Organizations

Kristianstad University

The Department of Business Studies

International Business Program

December 2006

Tutor:

Håkan Pihl

Authors:

Katariina Eskola

Johanna Hultman

Johan Johannesson

Abstract

The organizational evolution of companies' expansion abroad has been an interesting research object for many researches. Stopford and Wells belong to these researchers. This dissertation is based on their famous model, the International Structural Stages Model, which was developed during the 1960s.

The purpose of this dissertation was to investigate whether there are additional factors that are not considered in the International Structural Stages Model. Furthermore, we wanted to find out if it is possible to develop the International Structural Stages Model.

The survey was conducted on large international corporations with extensive business activities in Sweden. The population was 50 corporations and 18 companies participated in our survey.

As a result of our research, we have been able to add a new dimension to the International Structural Stages Model, the Information-Processing-Need dimension.

Keywords: Matrix, International Structural Stages Model, process model, structure and organization

Acknowledgements

This candidate dissertation is our final assignment before we graduate from Kristianstad University and reach our goal: a bachelor in International Business Administration.

The learning-process has provided us with ups and downs. When we have thought that we had a solution it has often contradicted a previous part. This process has taught us to be humble when confronted with new challenges.

We would like to thank our tutor Håkan Pihl for all his support and ideas through this process. We would also like to thank Annika Fjelkner who helped us with the English language. Last but not least, Pierre Carbonnier deserves our gratitude. His knowledge in SPSS has been very crucial for us.

We are very grateful for the respondents who participated in our study, without them the dissertation would not have been possible.

Kristianstad, December 2006

Katariina Eskola

Johanna Hultman

Johan Johannesson

Table of Contents

1 INTRODUCTION.....	7
1.1 BACKGROUND	7
1.2 PURPOSE	8
1.3 RESEARCH QUESTIONS	8
1.4 LIMITATIONS	9
1.5 OUTLINE	9
2. METHODOLOGY	11
2.1 CHOICE OF METHOD.....	11
2.2 RESEARCH APPROACH.....	12
2.3 RESEARCH PHILOSOPHY.....	13
2.4 DATA COLLECTION.....	14
2.4.1 Secondary data.....	14
2.4.2 Primary data	15
2.5 CRITICISM OF SOURCES.....	15
2.6 SUMMARY	16
3. THEORETICAL FRAMEWORK	17
3.1 THE INTERNATIONAL STRUCTURAL STAGES MODEL.....	17
3.1.1 A choice of structure.....	20
3.2 INTERNATIONAL DIVISION, WORLDWIDE PRODUCT DIVISION, WORLDWIDE AREA DIVISION AND GLOBAL MATRIX.....	22
3.2.1 International Division	23
3.2.2 Worldwide Product Division.....	25
3.2.3 Worldwide Area Division.....	27
3.2.4 Global Matrix.....	29
3.3 DIFFERENT AUTHORS' VIEWS ON THE INTERNATIONAL STRUCTURAL STAGES MODEL.....	32
3.3.1 Bartlett and Ghoshal	33
3.3.2 Franko	34
3.4. GENERAL THINGS ABOUT MATRIX ACCORDING TO SOME AUTHORS	38
3.4.1 Numerof and Abrams	39
3.4.2 Mintzberg and Sayles.....	40
3.4.3 Davis and Lawrence	41
3.5 SUMMARY	45
4. THE NEW MODEL	46
4.1 INTRODUCTION	46

4.2 INFORMATION-PROCESSING-NEED.....	47
4.3 WHY IS THE INFORMATION PROCESSING-NEED NEEDED?	52
4.4 SUMMARY	53
5 EMPIRICAL FRAMEWORK.....	54
5.1 RESEARCH STRATEGY.....	54
5.1.1 <i>Selection Method</i>	54
5.2 HYPOTHESES.....	55
5.3 THE QUESTIONNAIRE.....	58
5.4 POPULATION	59
5.5 RELIABILITY	60
5.6 VALIDITY	60
5.7 GENERALISABILITY	61
5.8 RESPONSE RATE.....	61
5.9 SUMMARY	62
6. RESULTS	63
6.1 DISTRIBUTION.....	63
6.2 HYPOTHESIS 1.....	65
6.3 HYPOTHESIS 2.....	67
6.4 HYPOTHESIS 3.....	68
6.5 SUMMARY	70
7 INFERENCE.....	71
7.1 ANALYSIS	71
7.2 SUMMARY OF THE DISSERTATION	74
7.3 ASPECTS OF OUR FINDINGS.....	75
7.4 RELEVANCE	76
7.5 SELF CRITICISM	76
7.6 FURTHER RESEARCH	77
REFERENCES.....	78

Figures and tables

<i>Figure 3.1 International Structural Stages Model</i>	17
<i>Figure 3.2 Relationship between Strategy and Structure</i>	18
<i>Figure 3.3 International Division</i>	22
<i>Figure 3.4 A Worldwide Product Divisional Structure</i>	25
<i>Figure 3.5 A Worldwide Area Structure</i>	27
<i>Figure 3.6 A Global Matrix Structure</i>	29
<i>Figure 3.7 Basic features of the Mother-Daughter Organizational Structure</i>	34
<i>Figure 3.8 International Organizational Evolution of Multinational Enterprises</i>	36
<i>Figure 4.1 The three dimensions of the New International Structural Stages Model</i>	48
<i>Figure 4.2 The different levels of the Information-Processing-Need</i>	48
<i>Figure 4.3 The different levels of the New International Structural Stages Model</i>	49
<i>Figure 4.4 The positions of the International Division and the Matrix</i>	50
<i>Figure 4.5 The New International Structural Stages Model</i>	51
<i>Figure 7.1 The New International Structural Stages Model</i>	74
<i>Table 6.1 Questionnaire Response and the Distribution</i>	63
<i>Table 6.2 Respondents divided into different market-focus groups</i>	63
<i>Table 6.3 Mean values for questions six and seven</i>	64
<i>Table 6.4 Dual focus and the need for Information-Processing</i>	65
<i>Table 6.5 Mean values for questions five, six and seven</i>	66
<i>Table 6.6 Mean values for questions 5-7 and the Need for Information-Processing</i>	67
<i>Table 6.7 Mean value for questions eight and nine</i>	68
<i>Table 6.8 Cultural dimension</i>	68
<i>Table 6.9 Summary of the hypotheses</i>	69

Appendixes

Appendix 1	Swedish questionnaire
Appendix 2	English questionnaire
Appendix 3	Results from SPSS

1 Introduction

This chapter describes the purpose of this dissertation. An overview of the background, research questions and limitations are discussed. Finally, the outline of this dissertation is presented.

1.1 Background

In today's world people, enterprises and nations are connected in a way that only decades ago was unthinkable. Globalization, the hot topic of today is here, and it is here to stay. Firms have outgrown their national markets, seeking profit globally. Firms have grown to become multinational enterprises with a sheer size and complexity unimaginable before the era of globalization.

Firms have gone from viewing their foreign affair as pure portfolio investments to incorporating them in their organization and making them a part of their structure and strategy. The journey from autonomous entities of a portfolio gamble to become a part of the global strategy has strained the organizations. With the help of organizational design enterprises have tried to overcome or even benefit from this development.

Researchers and scholars have studied organizations as they grow and become more complex. Data have been collected, analysed and processed, leading to new knowledge. One of the more famous models is the International Structural Stages Model, developed during the 1960s by John M. Stopford and Louis T. Wells. The model was published in *Managing the Multinational Enterprise* in 1972. The model is famous not only for their findings but also for its share size; it is based on a survey covering 187 international firms.

The International Structural Stages Model is a process model, showing the organizational evolution as organizations expand abroad. The structural need is defined and based on two variables, Foreign Product Diversity and Foreign Sales as a Percentage of Total Sales. This is also where the inherent problem of the model lies. Is the model oversimplified?

Bartlett and Ghoshal (1992) are amongst the researchers that have claimed that the International Structural Stages Model is oversimplified as it does not regard another important dimension of an organization.

After reading Bartlett and Ghoshal's (1992) argument we were intrigued to dig deeper, thus an investigation about structures and their implications were done by us. The more complex organizational solutions as the matrix structure was described by a variety of authors as the unicorn of organizational design. Almost impossible to implement but when correctly performed it could be the solution needed for a complex environment.

As described earlier, Stopford and Wells defined two variables to define the structural needs of an organization, could it be the case that the unicorn of organizational design could be reached by only regarding two variables? This is the reason for our dissertation about the International Structural Stages Model.

1.2 Purpose

The purpose of this dissertation is to find out if there are additional dimensions that affect the structural needs of an organization that are not considered in the International Structural Stages Model.

1.3 Research questions

This dissertation is based on the following research question:

- Are there additional factors that affect the structural needs that are not considered in the International Structural Stages Model?

- Is it possible to develop the International Structural Stages Model?

1.4 Limitations

Due to the time and resource limitations, we have only investigated companies that have extensive business activities in Sweden. Furthermore, we have limited the literature to few authors, who have studied the matrix. There are probably a lot of relevant authors who have investigated the matrix, but the time limitation did not make it possible to enlarge the secondary data.

Stopford and Wells wrote another book about the International Structural Stages Model, and the book was published in the same year as the one we have used. It is possible that the second edition contains useful information. Despite of an extensive search, we did not manage to get a copy.

This dissertation is based on an American model which is based on a survey conducted on American companies. Our population consists of the 100 largest international enterprises with extensive business activity in Sweden; it is not possible to define the origin of country of these companies. It is possible that the American model would be different if the survey had been done in the same way today but with our population.

1.5 Outline

This dissertation has the following outline:

Chapter 2

In this chapter the research approach, research philosophy and data collection process are presented. We finish the chapter with a short criticism of our sources.

Chapter 3

The theoretical framework is presented in this chapter. The International Structural Stages Model will be presented in detail. Furthermore, some authors' thoughts about the matrix and the International Structural Stages Model are given in the end of the chapter.

Chapter 4

We have developed the International Structural Stages Model and the new version is presented in this chapter.

Chapter 5

The empirical framework is presented in this chapter. We explain the research strategy and analyse the questionnaire. These are followed by the hypotheses. The population, reliability, validity and generalisability are clarified in the end of the chapter.

Chapter 6

This chapter contains the results of our survey. The results are presented in form of tables and a short discussion follows each table.

Chapter 7

In this chapter we will theoretically discuss the dissertation. We will present the practical relevance of it. Some suggestions for further research are given and self criticism is discussed in the end of the chapter. We finish this chapter with a summary of the dissertation.

2. Methodology

The different choices concerning the methodology are presented in this chapter. We describe the research approach and the research philosophy. In addition we explain how we have collected the secondary and the primary data. We finish the chapter by a brief criticism of the sources.

2.1 Choice of method

We started by reviewing the existing data and theories. The International Structural Stages Model, which this dissertation is based on, was developed during the 1960s and was published in 1972. The model is very famous, and despite of its age, it is still used in business education at universities. Hill (2005), for example, refers to it in his book *International Business – Competing in the Global Marketplace*.

The review of the literature showed that there are many researchers, for example Mintzberg (1993), Galbraith (1994, 2000 and 2002), Kolodny (1976) and Knight (1977) that have studied the matrix. Franko (1976) has linked his studies and the outcome of those studies to Stopford and Well's (1972) International Structural Stages Model. We present Franko's study in this dissertation. Davis and Lawrence (1977) discuss the concept of the matrix structure in their book, *The Matrix Organization – Who needs it?*, and they establish three conditions which underlie our research. In addition, we consider that there is a link between their conditions and the International Structural Stages Model. Finally, Bartlett and Ghoshal (1990, 1992 and 2000) have studied organizational structures and their findings are used in our dissertation.

A great deal of the literature is from the 1970s. It is difficult to give an answer to why the 1970s was so inspiring for economists. One explanation

can be that the whole business world became computerized during this decade, and this revolution triggered changes within the organizational structures. These changes were inevitable. In order to compete with others and react faster to the new demands from the changing environment, companies had to change their organizational structures.

These aspects characterizes today's business world as well. The world is still changing in a fast pace and globalization presses companies to change their organizational structures in order to keep up with the changes and the accelerating competition. At the same time the environment is very complex. We consider that the more than 30 year old International Structural Stages Model is incomplete and does not give us the explanation to structural needs in a complex environment. By conducting a study on international companies, we hope that we can answer this question.

2.2 Research approach

There are two kinds of research approaches, deductive and inductive approach (Saunders, 2005). In a deductive research a theory and hypothesis are developed first and then a strategy is designed in order to test the hypothesis. The deductive research approach is often used in scientific research, where it is necessary to collect a lot of quantitative data in order to generalize the results.

An inductive approach means that data is collected first and then a theory, which is based on the collected data, is developed. This approach is appropriate when the aim is to conduct a survey where qualitative conclusions can be made and generalization is not important (Ibid).

In some cases it can be impossible to draw a line between the deductive and the inductive approaches. The structure of the survey may require a combination of the two approaches, and in some cases, this often is advantageous too (Ibid).

The deductive approach is used in this dissertation. We started by studying the existing literature within our subject, and our theoretical framework is based on this information. The next step was to develop Stopford and Wells International Structural Stages Model. Then we developed three hypotheses regarding the developed model. These hypotheses were then transformed into a questionnaire which was tested on a population

2.3 Research philosophy

There are three common research philosophies: positivism, realism and interpretivism (Saunders, 2005). Authors who use positivistic research approach facilitate future researchers' possibility to replicate the previous results. The results of a positivistic research can be compared with laws: the results should be the same every time. The focus in positivistic research approach is on quantifiable observations.

Realism, on the other hand, reflects the reality, and the concept of realism can be divided into direct realism and critical realism. Saunders (2005) says that direct realism means that "what you see is what you get". This means that the results of a survey reveal the real character of the reality. In comparison, critical realism means that some adjustments are possible, and that there can be some changes in the environment. However, it is possible to make some kinds of general assumptions.

Finally, in an interpretivistic research the environment is very complex and it is difficult to generalize. This research approach is appropriate if the researcher wants to study an organizational phenomenon or human resource management, for example. These situations are very complex and unique and it is not possible to draw general conclusion. In contrast, it is important that the reader understands the real characters of the study (Ibid).

The research approach of this dissertation is realism. Our purpose is to generalize the results. However, we are aware of that the level of the

complexity of the environment may differ from branch to branch and that there may be other factors that affect the organizational decisions.

2.4 Data collection

We have used both secondary and primary data in this dissertation, and in this part we explain the two concepts. We will also explain what kind of secondary data we have used and how the primary data was collected.

2.4.1 Secondary data

Secondary data is data that have been collected for some other purpose and the author who uses the data, reanalyzes it (Saunders, 2005). Secondary data can be divided into quantitative and qualitative data. The former include all collection techniques that produce numerical data and the latter include all collection techniques that produce non-numerical data.

An advantage of secondary data is that it saves the researcher's time and money (Ibid). Secondary data can also give new ideas and possibilities to view the subject. Another advantage of secondary data is that the researcher can place his or her own results within a more general context and compare the data collected with previous data.

However, sometimes it can be difficult and expensive to get access to some sources. The secondary data available can also be collected for some other purpose, and may not meet the researcher's expectations. Furthermore, there are no quality guarantees of the data and the original purpose of it may have affected the final presentation of the data. This, in its turn, may affect the contents and the usefulness of the data (Ibid).

We have collected the data used in this dissertation through articles and books from authors that have studied organizational structures and the matrix in particular. Authors like Mintzberg, Franko, Knight, Bartlett and Ghoshal and Davis and Lawrence have devoted a lot of time to the matrix

structure. We discuss all these authors in our dissertation. But, due to the fact that Bartlett and Ghoshal have criticized the International Structural Stages Model and that Davis and Lawrence gave us the idea about the information-processing dimension, their thoughts are presented in more detail.

2.4.2 Primary data

Primary data is data that is collected for a specific purpose (Saunders, 2005). The data can be collected through observation, different kinds of interviews (semi-structured, in-depth, and group interviews) and questionnaires. We use telephone interviews in this dissertation.

The advantages with telephone interviews are cost and time savings. This method allows the researcher to contact a large amount of respondents. When using questionnaires send via email, the researcher seldom reaches the correct person directly. Few people have time to send the email forward and this leads in a large falling off (Ibid). We eliminated this problem by choosing telephone interviews: we made the first call to the press officer which in most cases could answer our questions.

Disadvantage with telephone interviews is the lack of possibility to create trust; it may be difficult to collect qualitative data via telephone. People may not want to answer to sensitive questions on telephone. The difficulty to take notes and ask questions is also a disadvantage (Ibid). However, our questionnaire consists of quantitative question and the answers were measured with a scale of one to ten which makes it easier to take notes. Furthermore, our questionnaire does not include qualitative questions.

2.5 Criticism of sources

Stopford and Wells (1972) designed the International Structural Stages Model and it is based on their research about American companies. According to Franko (1976) there are differences between American and

European companies. Despite of this, we have decided to conduct a survey on international companies. It is possible that the basic conditions for this dissertation would have been different if we had based the survey on a study about European companies. But, as we have concluded, there is no similar study made on our continent.

Finally, most of the books we have used in this dissertation were written during the 1970s and they are very theoretical, which is understandable. The phenomenon was very new and the challenge was to describe the new trend from different points of view. Thus, these books lack the aspects of reality.

2.6 Summary

In order to accomplish the purpose of this dissertation, a deductive research approach was used. Furthermore, we wish to generalize the results of our study, so the principle of realistic research approach suited our intention. Secondary data was collected through books and articles and primary data was acquired through a questionnaire. Three hypotheses were designed and these were tested with the help of telephone interviews.

3. Theoretical framework

This chapter starts with a detailed description of the International Structural Stages Model. Later on we will explain Franko's thoughts about the model. Then we investigate what different authors have written about the matrix structure. We finish this chapter by describing Davis and Lawrence three conditions.

3.1 The International Structural Stages Model

John M. Stopford and Louis T. Wells (1972) developed the International Structural Stages Model during the late 1960s and it was published in 1972 in their book *Strategy and Structure of the Multinational Enterprise*. The model is recognized both for its size and that it became the benchmark for many authors, for example Bartlett and Ghoshal (1990, 1992 and 2000) and Franko (1976). The International Structural Stages Model is based on a study of 187 companies which was made during the 1960s. The target group was the companies that were on *Fortune's* list of the 500 largest manufacturing enterprises in the United States in 1963 or 1964 (Stopford and Wells 1972). Although the model is based on US corporations, it is widely used in academic circles all over the world.

With help of the results, Stopford and Wells defined two variables, Foreign Product Diversity to capture strategic complexity and Foreign Sales as a Percentage of Total Sales to capture administrative complexity. The different structures inside the model and between these two axes describe the different alternatives a company has when it plans its expansion abroad. The model is presented in figure 3.1 on the next page.



Figure 3.1. *International Structural Stages Model* (Hill, *International Business – Competing in the Global Marketplace*, 2005, p. 448)

The area which can be seen on the left side of the line, illustrates the International Division structure, which will be explained later in this chapter. However, it is important to point out that it is impossible to say that the line should be drawn here exact and that the companies that land outside the area can not implement the International Division structure; there are always exceptions. The boundary is only an approximate illustration. But, Stopford and Wells (1972) motivate this with the fact that companies that have one dominating product line often apply the international division structure. This conclusion is based on their study. A combination of a more complex range of products and an increase in foreign sales brings about problems of administration and product development, and demands another kind of organizational structure.

If we exclude the content of the model we can illustrate the frames of the model in another light. This model is presented on the next page.

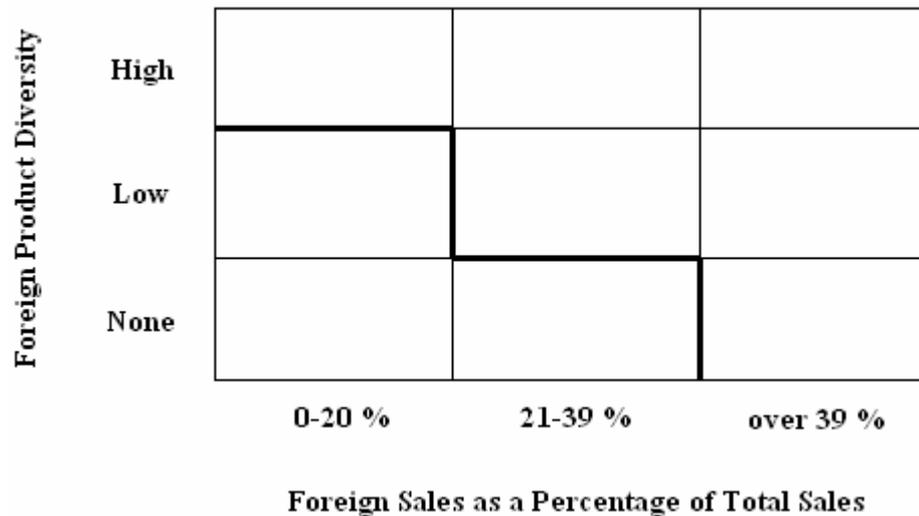


Figure 3.2. Relationship between Strategy and Structure (Stopford and Wells, Managing the Multinational Enterprise, 1972, p. 64)

In this figure the Foreign Product Diversity can be divided into three levels; none, low and high. The lowest level, none, implies that a company has all its products in a single industry. Next level, low, indicates that a company has one product line that is dominating the company's business but it has products in other industries as well. If a company is at the top-level, i.e. its foreign product diversity is high, the company has products in many industries but none of these products are dominating (Stopford et al. 1972).

The Foreign Sales as a Percentage of Total Sales –numbers show us how much of a company's total sales come from abroad. These figures include exports, but exclude sales of foreign licensees and foreign subsidiaries in which the parent firm owned less than 25 percent of the equity. These numbers also include estimates of foreign sales for new companies (Ibid). Stopford and Wells (1972) consider that if the foreign sales represent more than 39 % of the total sales, the international division is not an appropriate solution due to the complexity of the market and the products. They mean that it is difficult for a simple international division to handle the increased demand and the coordination of the productional and administrative resources.

3.1.1 A choice of structure

Every company has some kind of structure and it is so obvious that we often take it for granted. However, there are important reasons behind these decisions and in order to fully understand a company's choices we have to be aware of the different reasons for these choices. Stopford and Wells (1972) describe these in their book, and in order to keep it simple, they explore only two structures; functional and divisional. These are described in more detail later in this chapter. According to Stopford and Wells, these can be seen as comprehensive structures. They state that the development of a company's organizational structures can be broken down into three stages. We describe the structures and the stages and the link parallel to the International Structural Stages Model (figure 3.1 p. 17) and to the figure 3.2 (p. 18) in the next chapter.

3.1.1.1 The Functional Structure

The starting-point of the International Structural Stages Model (figure 3.1 p. 17) is down to the left, between the axis of Foreign Product Diversity and Foreign Sales as a Percentage of Total Sales. This phase is called Stage 1. In this stage companies are relatively small and their product line consists of a single product or a single line of closely related products. The size of the company makes it possible for one manager to administrate all the activities and the manager often is the owner or the founder of the company (Stopford and Wells, 1972).

However, one manager's capacity to manage complex tasks is very limited and this restricts the company's possibilities to expand its business activity. As the demand of the company's products increases, so does the need of delegation. There is suddenly a requirement of a larger amount of managers and functional departments between which the new and complex challenges and tasks can be divided efficiently. The result of this development is the introduction of different functions, for example sales, production, marketing

and financial functions, and the managers of these departments report directly to the president (Stopford et al. 1972).

The introduction of diverse functions is a step towards Stage 2, which enables the company to produce and sell more of the existing product/products in the same market. However, it is possible that the company acts on few international markets, but the extend of the international business activity is not that great. Thus, the international division can manage all the activities on these markets. Companies are moving either up along the vertical axis or to the right along the horizontal axis, but regardless of the direction, they leave the starting-point but stay inside the boundary (Ibid).

In Stage 2 each department (sales, production, marketing and financial) is managing its own activities and has the responsibility for its results. A hierarchical structure for a company which is about to expand, is a necessity. The hierarchy facilitates the distribution of information from the top-management level down to functional level and also inside the different functions. However, the boundaries between the functions can be seen as a hindrance to communication between them. But, it is not said that this is an obstacle for every company. Each company is unique and has different needs of communication. It is important that these needs are taken into consideration when the structure of the company is designed (Ibid).

Although we talk about functional structure, it should not be mixed up with the International Division. A company can have a functional structure, but because it is not very active on the international market/markets and its product range is limited to one or few products, the international division can manage all the activities of the international market/markets. In most cases companies act only on one international market in this phase (Ibid).

3.1.1.2 The divisional structure

When the existing product line grows with one or more products, the simple functional structure does not manage the complexity in form of production and administration that follows the new product/products. The functional structure is quite rigid and inflexible. In order to satisfy the market needs, the organizational structure must move the focus from functions to more specific divisions which concentrate on business activities around one product. The choice of organizational structure depends on the path the company has followed from the International Division, and both the Worldwide Product Division and the Area Division are designed to manage complex demands from the environment. This is called Stage 3 (Stopford et al. 1972).

The change from the International Division to the Worldwide Product Division occurs in theory when the company passes the boundary on the vertical axis, i.e. the boundary between the “low” and the “high” level. See figure 3.2, p. 18. In practice the change is not that clear but a diversification of the product line gradually leads to the Worldwide Product Division. Similarly, companies which move along the horizontal axis, Foreign Sales as a Percentage of Total Sales, shift from the International Division to the Area Division when their foreign sales (as percentage of total sales) increase and exceed the limit of 39 %. Many of these companies have been active on the international market, but they have had low foreign product diversity. Some companies may diversify their products and in that case move higher up in the model, but companies that are content with fewer products stay close to the horizontal axis (Ibid). See figure 3.1, p. 17.

3.2 International Division, Worldwide Product Division, Worldwide Area Division and Global Matrix

The different parts of the International Structural Stages Model are presented in more detail here.

3.2.1 International Division

The international division is most suitable in the beginning of the internationalization process. The level of the product diversification is quite low when a company starts to expand abroad and it is natural to start the international expansion with export. When the newly entered market starts to generate profit to the central office, the importance of the market grows. This results in an increasing need of knowledge about the new market which is necessary in order to be successful. The international division is shaped to gather that knowledge and the international division is formed to be able to coordinate the different needs and possibilities of the international markets (Stopford et al, 1972).

An international division is created as “an “umbrella” covering all the foreign activities of the enterprise” (Stopford and Wells, *Managing the multinational enterprise*, 1972, p. 21). The structure of the International Division is presented below.

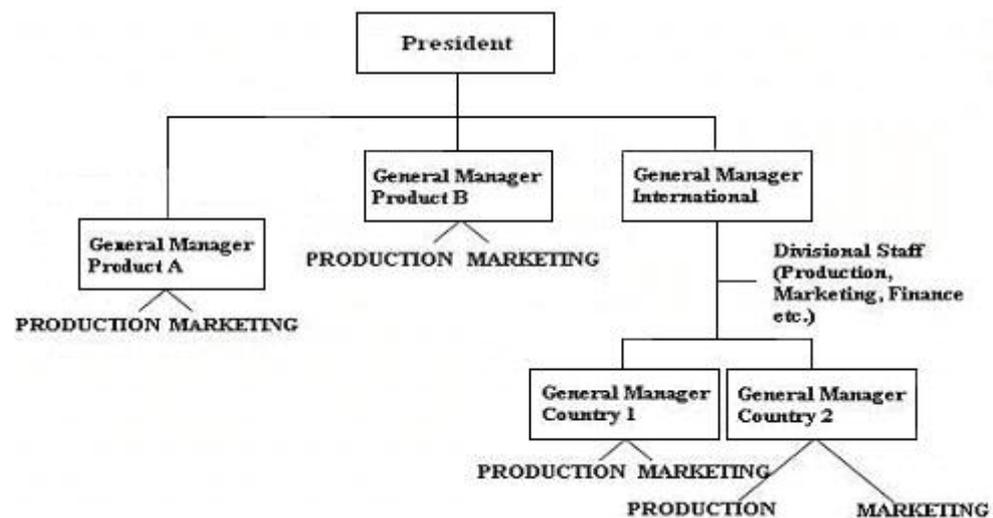


Figure 3.3. International Division (Stopford and Wells, Managing the Multinational Enterprise, 1972, p. 23)

The figure above is actually a product division structure to which an international division is added. However, an international division can be

added to purely functional divisions as well, which was explained in the beginning of this chapter. The main characteristic for these structures is the separate international division which focuses on the international market (Stopford and Wells, 1972). The separate international division actually resembles an entire company; it has its own divisional staffs which are responsible for production, marketing, finance and control and these departments report directly to the general manager of the international division. The general managers for country 1 and 2 (there may be more countries) work under the general manager of the international division. Their departments are divided into different functions, for example production and marketing.

Stopford and Wells (1972) state that companies move freely inside the boundaries and some companies may keep the functional structure and the international division. Some companies change their structure from the functional structure to a divisional structure in a very early phase but later decide to maintain their international division. It is also important to keep in mind that the International Structural Stages Model is very theoretical and there are probably different variations of these theories in reality. These modifications are naturally designed to satisfy each organization's needs and goals.

Many companies continue to develop their international business in order to gain a larger market share and many of these companies abandon the international division structure (Ibid).

Pros and cons

The purpose of the international division is to gather all the different functions under the same roof in order to coordinate and control them better. This increases synergy effects, but it is also more profitable to have all the functions at the same place.

The most visible disadvantage of this kind of structure is duplicated functions, which can lead to conflicts and coordination problems between the domestic and the foreign units, and result in fragmentation (Hill, 2005).

3.2.2 Worldwide Product Division

After adapting the International Division structure as the organizational structure, firms sometimes find that the international division structure does not satisfy their organizational needs. The addition of a new product may bring new challenges in form of complexity and the international division as an organizational structure may be too simple and can not manage the situation. With the help of the Worldwide Product Division, the problems of managing product diversity in the subsystem are eliminated. This structure also facilitates communication inside the barriers of each division. The focus in each division is put on the particular product. This organizational structure suits best companies which are reasonably diversified (Hill, 2005).

The Worldwide Product Division is an organizational structure which consists of groupings based on product lines. In these kinds of organizations, the headquarter is in control over the strategic development and the financial control of the firm. The different product divisions are in control over their product lines. Thus, product divisions are relatively autonomous and the products are different from those of other divisions. The decision making is decentralized in the company (Hill, 2005). A typical Worldwide Product Division structure is presented below.

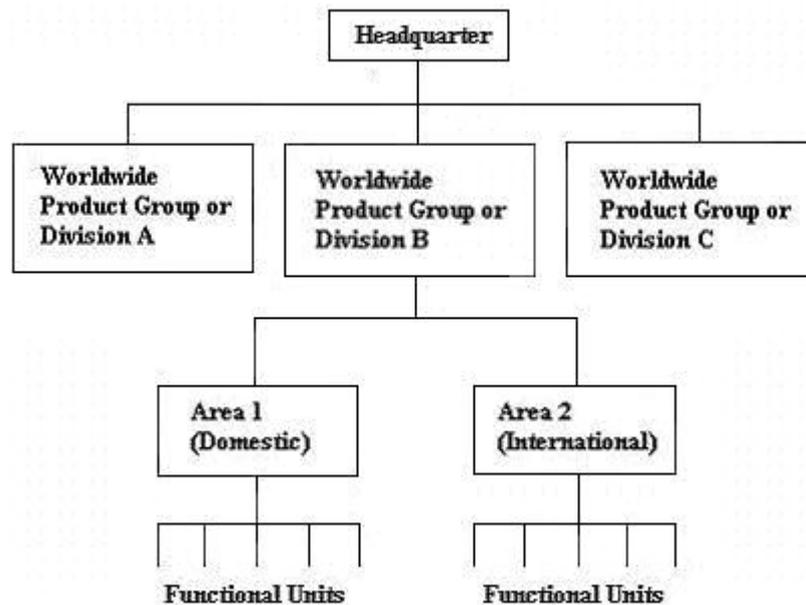


Figure 3.4. A Worldwide Product Divisional Structure (Hill, International Business – Competing in the Global Marketplace, 2005, p. 450)

The figure above shows that the Worldwide Product Division is based on the headquarter at the top and then the firm is divided into different product divisions; Worldwide Product Division A, Worldwide Product Division B and Worldwide Product Division C. These in turn are then divided in Domestic and International Area Divisions. Thus, each product division acts as an independent entity and it can develop its own business strategy as long as the managers in the division follow the overall strategy in their decisions (Hill, 2005).

Hill (2005) talks about two key words in this context; value creation and coordination. Value creation is decentralized to each product division. The managements of these divisions coordinate this so that the product satisfies the consumers' needs all over the world. By doing this the company can guarantee that the product has the same high quality everywhere.

Pros and cons

When a firm chooses to adapt the Worldwide Product Division it often meets the problem of responsibility (Hill, 2005). Furthermore, the structure

has an inherent problem of distributing information between divisions, causing it to stay within the boundaries of each product division. The result is that important information and knowledge does not reach higher levels of management and other divisions (Hill, 2005).

A product division acts as an autonomous unit which has its own resources and can develop a business strategy of its own. This facilitates the coordination of resources inside the division (Ibid). This also minimizes the problems of sharing resources with another division. The transfer of core-competence becomes easier when every worker in a division is working under the same manager. Stopford and Wells (1972) talk about close product coordination which can be related to the experience curve (Hill, 2005). By producing all the products by it self's, the division learns how to produce more effectively and this leads in a reduction in production costs.

Lack of local responsiveness is the main disadvantages with the Worldwide Product Division. The managers of the domestic and the international areas are subservient to the product division managers and this gives them limited control. This lack of control results in weak local responsiveness because all the important decisions are being made on the divisional level, instead of on the "area-level". Duplicated departments in each division increase financial costs, when each division has its own R&D, marketing and production facilities (Stopford et al. 1972).

As the time goes by, independency can also be seen as a disadvantage; the complexity of the market increases, consumers demand more and technological changes occurs more and more often. These obstacles often lead to the change of the firm's organizational structure from the Worldwide Product Division to the Matrix.

3.2.3 Worldwide Area Division

The Worldwide Area Division suits best companies with a low degree of diversification. In stead of diversifying their products, they concentrate on

the development of their products and on expanding into a large number of international markets. Thus, foreign sales represent a major share of their total sales.

Corporations which apply this organizational structure are divided into different geographical areas. These areas can be countries or groups of countries (Hill, 2005). The structure of the Worldwide Area Division is presented below.

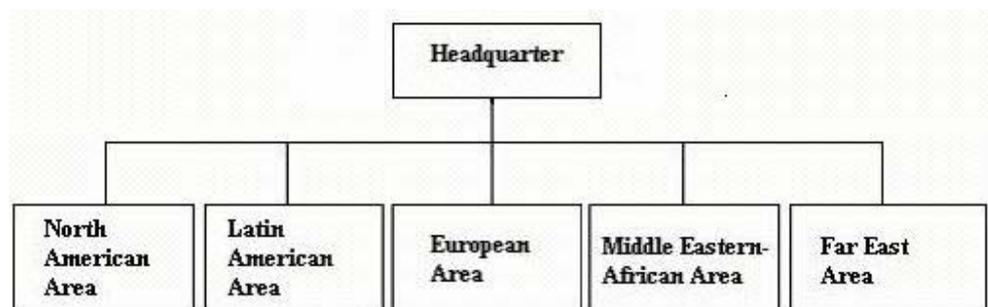


Figure 3.5. A Worldwide Area Structure (Hill, International Business – Competing in the Global Marketplace, 2005, p. 450)

The headquarter has control over the whole firm. Under the headquarter the company is divided into different geographical areas. Each area is autonomous and it is concentrating on it self and has very little contact with the others (Stopford et al. 1972). The different areas keep their own value creating activities; production, marketing, R&D and human resources. However, the headquarter has the main control over the finances and the strategic decisions. The Worldwide Area Division is an example of a decentralized organizational structure; the decision making is spread within the firm and does not only come from the top management (Hill, 2005). This kind of firm looks more like one big firm with a lot of daughter companies than one firm with a couple of smaller organizational divisions (Stopford et al. 1972).

Pros and cons

The Worldwide Area Division is an optimal solution if a firm is producing products that demand high local responsiveness. The decentralized area divisions can reallocate their resources and they have a high awareness of the local market needs. In this way they can quickly respond to eventual changes in the external environment (Hill, 2005). The duplication of the functions also reduces the interdependency between divisions and they are free of the need to coordinate with one another (Mintzberg, 1993). Thus, performance ambiguity is low in Worldwide Area Divisional structure. According to Hill “performance ambiguity exists when the causes of a subunits poor performance are not clear” (Hill, *International Business – Competing in the Global Marketplace*, 2005, p. 460). Subunits are not dependent of each others performance in this organizational form. Thus, they work independently and are responsible for their results.

The disadvantage with the Worldwide Area Division is that it encourages fragmentation (Ibid). This is a direct result of autonomous units which do not cooperate with each other. This makes the organization weaker. The Worldwide Area Division can also be very costly due to the duplicated departments. This kind of structure can in some cases lead to competition between different areas and this can have detrimental effects (Bakka, Fivelsdal, Lindkvist, 2001).

3.2.4 Global Matrix

The International Structural Stages Model describes how a company can develop its organizational structure during the process of internationalization. During this process the company grows, diversifies its products and expands into new markets, and the complexity of the environment enhances. A sign of complexity can often be seen from the inability to handle the increasing amount of information. One reason for this inability is the limitations of the company’s physical boundaries. Both, the Worldwide Product Division and the Worldwide Area Division consist of

one grouping (product or area) and the boundaries of these groupings (divisions) can be a hindrance to efficient communication between the divisions (Hill, 2005).

The Matrix organization is a combination of two different kind of organizational structures where normal vertical hierarchy is overlaid by some kind of influence from the lateral, i.e. horizontal side. Two different functions, for example production and geographical division are combined in the matrix. The key characteristic of a matrix organization is that a worker reports to two managers, instead of one. An example of a matrix structure is presented below (Hill, 2005):

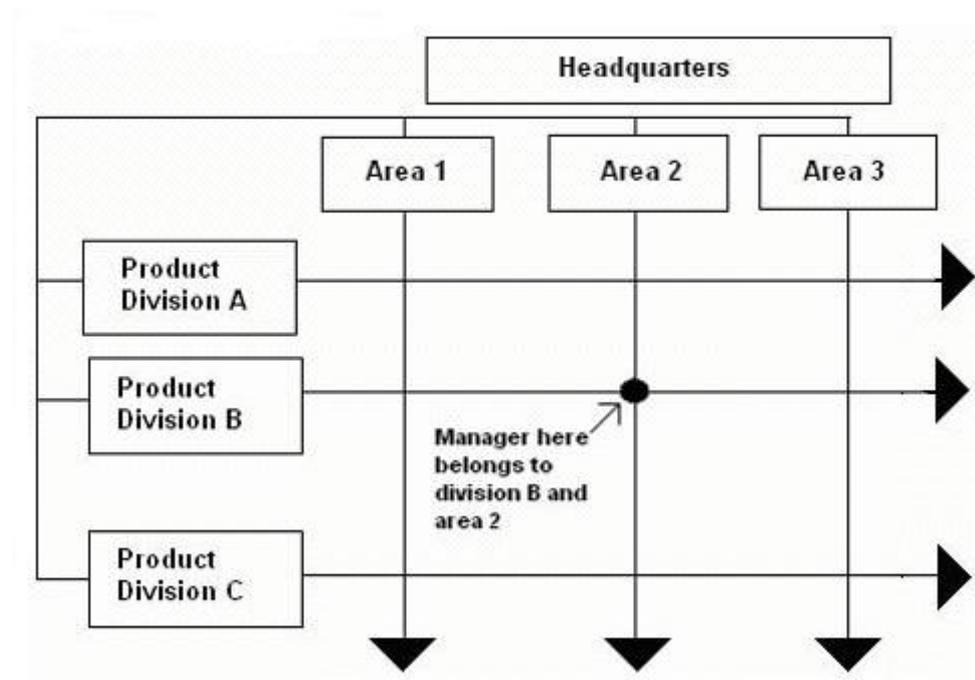


Figure 3.6. A Global Matrix Structure (Hill, International Business – Competing in the Global Marketplace, 2005, p. 451)

This is a typical matrix structure. The vertical groupings are divided into different functional groupings (product groups in this case) and the horizontal groupings are divided into different output groupings (geographical areas in this case). Functional units do not need to be products; projects and programs can also be used as different types of units.

Similarly, output groupings can consist of distribution manager, marketing manager and customer relationship manager (Hill, 2005).

The arrow in the model shows that the manager in that section belongs to Product Division B and Area 2, thus he or she reports to the managers of those departments. Here we have the description of the other main character; dual-authority. With this feature, the matrix structure violates the natural law: one-boss-principle (Galbraith, 2002). According to Galbraith, dual-authority means that two managers share the setting of goals and performance evaluation. This desirable harmony and goal to weld the two managers together is called balance of power (Mintzberg, 1993). The managers that are part of the dual-authority in a matrix organization have to work as if they were one person. They have to work very tightly, have respect for each other and there has to be a balance of power between them.

Pros and cons

According to Knight (1976) there are a lot of advantages with the matrix structure and those are:

- efficient use of resources
- flexibility in conditions of change and uncertainty
- technical excellence
- ability to balance conflicting objectives
- freeing top management for long-range planning
- improving motivation and commitment
- giving opportunities for personal development

Resources means staff, which in the matrix structure consists of individuals with special skills. Through increased communication and wider channels in the organization, the specialized staff is a benefit for the organization: employees can be moved between different projects. Thus, the existing resources are used as efficiently as possible. The lateral and wider communication channels also lead to faster reaction when the environment changes and the demands increase. The cross-functional organization and

co-operation between departments and the movement of staff also result in sharing of technical knowledge. Sometimes conflicts between customer satisfaction, profitability and organizational goals result in dissatisfaction and it can be difficult to satisfy all these parts. In the matrix the balance between conflicting objectives can be seen as a cornerstone (Knight, 1976).

Involvement of managers from two different groupings could relieve the top-managers pressure. Highly specialized individuals in a matrix organization get more responsibility and motivation through varying projects, where they can provide special knowledge. The matrix structure creates opportunities for workers to develop their knowledge; employees' responsibility and comprehension enhances through stimulating projects (Knight, 1976).

Dual-authority is the distinguishing feature of the matrix structure but it can at the same time be a hindrance to a successful organization. Bartlett and Ghoshal (1992) state that the confusing dual reporting –system lead to conflicts and the wider channels which should increase the amount of information in a positive way, create logjams, and this makes people feel stressed. Differences in culture, routines and language between two departments make it difficult to co-operate. They also point out that the structure of the matrix is too formal. Relationships, informal information channels, norms and beliefs are normally not taken into consideration and these aspects are the cornerstone of matrix. These are discussed in more detail in the next chapter.

3.3 Different authors' views on the International Structural Stages Model

Here we present criticism from Bartlett and Ghoshal and Franko's explanation of the European structural development, compared to the International Structural Stages Model.

3.3.1 Bartlett and Ghoshal

Bartlett and Ghoshal (1992) have criticized the International Structural Stages Model for only focusing on one variable, the formal structure. According to them a company should look beyond the structure and take other factors into consideration when it plans to change the organizational structure. They call the organizational structure for an organization's "anatomy". This anatomy should be complemented with physiological and psychological factors. According to them, the organization's systems and decision processes are physiological factors and the organization's culture and management mentality are psychological factors.

The physiological factors, the systems and decision processes, consist of administrative, hierarchical, and particular informal information channels (Bartlett and Ghoshal, 1992). According to them, the amount of information passing these channels is enormous and it is an important part of the total information distribution in a company. This fact should not be neglected. On the contrary, the management should support this informal exchange of information, and in some way exert control and influence over it. Bartlett and Ghoshal (1992) claim that many authors have stated that "there is a link between the need for information and the complexity and uncertainty of the tasks to be performed" (Bartlett and Ghoshal, *Transnational Management*, 1992, p. 527). Usually, this considers large international companies which have both diversified their products and expanded abroad.

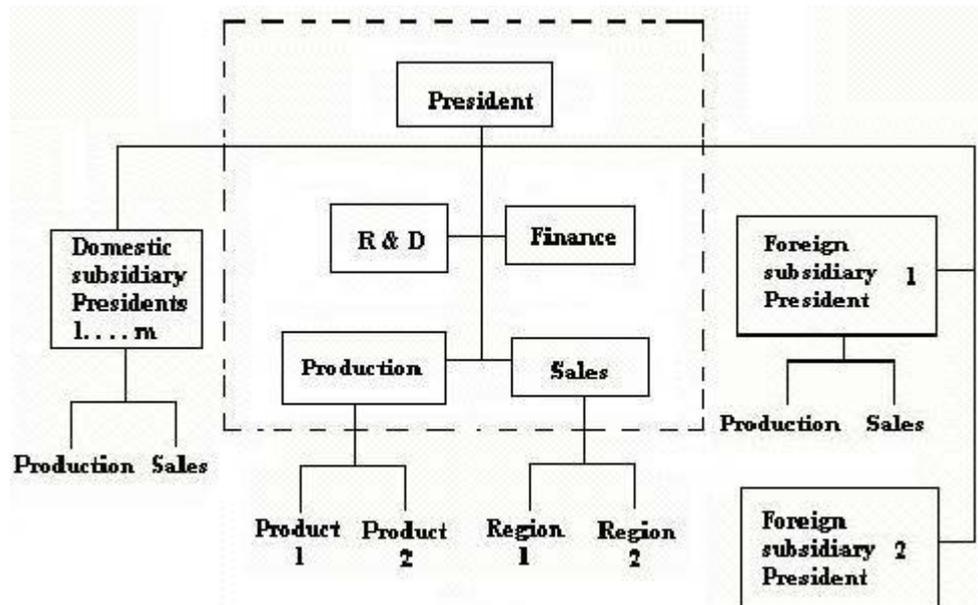
In order to be complete, an organization has to have anatomy, physiology and psychology. The last part consists of the organization's culture, which include the values and beliefs (Ibid). These affect how the organization works and how the decisions are being made. For organizations which act on international markets, this is crucial. In many cases the company's language is English, although the company is originally Swedish. Furthermore, a large part of the employees represent different countries and different cultures. Thus, if the cultural aspect is not taken into consideration,

the organizational structure may jeopardize the effectiveness of the company (Bartlett et al. 1992).

3.3.2 Franko

The International Structural Stages Model, as previously described, was developed from *Fortune's* list of the 500 largest manufacturing enterprises in the United States in 1963 and 1964. Franko (1976) took part of Stopford's and Well's research and according to him the development of the companies' internationalization and the structures of these companies have been different in Europe. European firms often had highly personalized relations with their foreign subsidiaries; the owner of the firm often selected relatives as heads of their foreign subsidiaries. Although this form of appointing relatives as heads of foreign subsidiaries gradually decreased, it was still a very important bond in the 1970's. This phenomenon became known as the mother-daughter form of organization.

The mother-daughter relationship was often built on trust; subsidiaries were trusted not to do anything that was not good for the parent company. This was due to the often strong bonds, mostly built on friendship and respect between the president of the parent company and the head of the foreign subsidiary. A typical mother-daughter structure is presented on the next page..



Picture 3.7. Basic features of the Mother-Daughter Organizational Structure (Franko, *The European Multinationals – A Renewed Challenge to American and British Big Business*, 1976, p. 187)

The figure above shows that the mother-daughter organization was often domestically organized as a functional organization, where the president of the foreign subsidiary reported to the parent companies president (Franko, 1976).

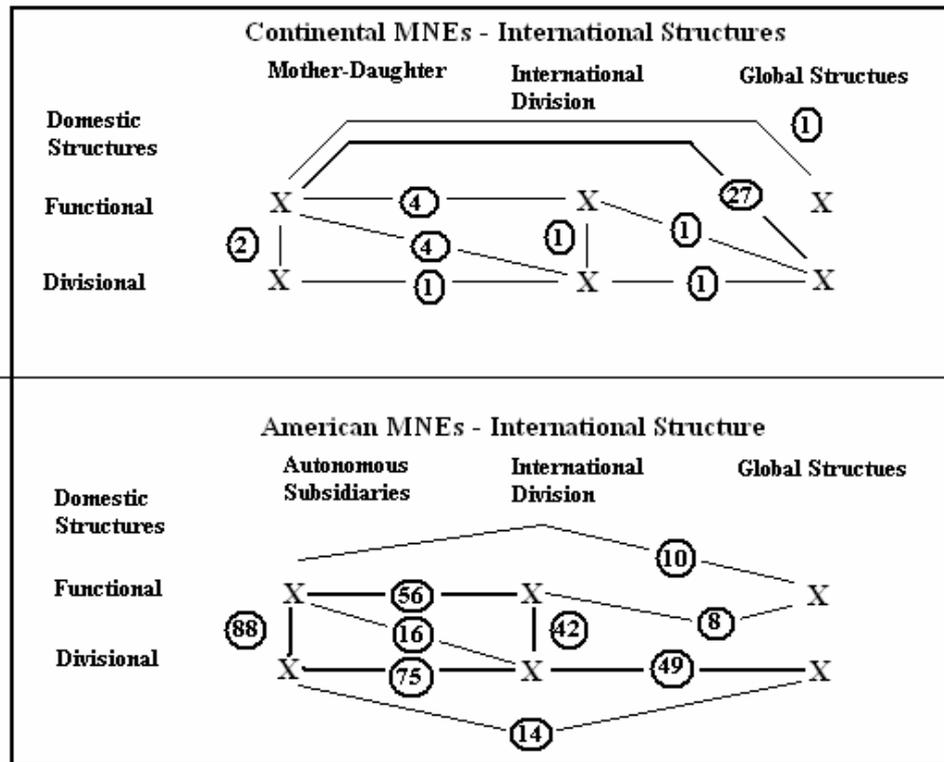
The American equivalent to the mother-daughter relationship is the president-to-president relationship where friendship is seen as an important factor as well. The president-to-president relationship was very common in the beginning of the internationalization process of American companies, similarly to the mother-daughter relationship in Europe (Ibid).

The president-to-president was not as prolonged as the European equivalent. According to Franko (1976) more than half of the companies which had president-to-president structure, move on and abandoned the structure before they had set up their fifth manufacturing subsidiary. All the companies that had more than ten manufacturing subsidiaries had gone over to other structures. This depended mainly on the complexity of the network systems with manufacturing operations, which made it difficult for

companies with president-to-president structure to handle the complexity. President-to-president relationship is very formal and rigid as structure and not very flexible.

The mother-daughter relationship was more long-lasting than the American equivalent, most often explained by the high barriers of trade in Europe. National markets were separated and this limited production specialization. This in its turn led to a low need of coordinating the subsidiaries, and cross-boarder communication needs were limited (Franko, 1976). Short geographical distances between European countries favoured the mother-daughter structure, too. Low product diversification in Europe during the 1970s made it possible to maintain this structure for many years; when companies only had few products, the mother-daughter structure could coordinate and control the international activities. In addition, it was more common in Europe that top-managers worked many decades in one firm. This was quite unusual among American top-managers (Ibid).

European firms with successful subsidiaries in United States led the movement away from the mother-daughter structures. Managers returning home to Europe after exile in the United States during World War II were influenced by the product-division structure that was developed by Du Pont and General Motors (Ibid). The picture below illustrates the difference between American and European multinationals' evolution.



Picture 3.8. International Organizational Evolution of Multinational Enterprises (Franko, *The European Multinationals – A Renewed Challenge to American and British Big Business*, 1976, p. 203).

Before we explain the model, we want to point out that the president-to-president structure is used before the International Division structure in Stopford and Wells model (see figure 3.1, p.17). The levels of internationalization and product diversification are very low in both president-to-president and mother-daughter structures and these structures take place in an earlier stage of the internationalization process.

If we compare the illustration over the continental multinational's international structures to Stopford and Wells (1972) International Structural Stages Model, we can see a link between them. If the different structures (mother-daughter, international division, global structure) were put in chronological order, it would be comparable to the International Structural Stages Model; most European companies start with mother-daughter structure but then they jump over the international division and go over to the global structures. With global structures we mean the Worldwide

Product structure, the Worldwide Area structure and the matrix structure. According to Franko (1976) more than 60 % of the European corporations jumped over the International Division and implemented direct a more global structure. This can be concluded from the figure 3.8.

In comparison, most American companies chose another way. Only 10 corporations out of 358 skipped the International Division and chose a more global structure. The rest of the companies followed another path and changed their structure from functional structure to either divisional structure or to the International Division. However, out of the American companies that participated in Stopford's and Well's (1972) study, surprisingly many stayed at the international division; just over 20 % moved forward towards the global structures.

The reason to these differences according to Franko (1976) is the competitive environment. The demands from the environment forced European companies to diversify their products and this resulted in a development of their structures; an international division cannot manage the pressure and the coordination of multiple product ranges. They diversified their products both on domestic and on international markets. American companies, on the other hand, stayed much longer on the domestic market and focused on domestic product diversification. This pressured them to change their organizational structure in an earlier phase from functional structure to divisional structure in order to better satisfy the customers' needs. Many American companies maintained the relatively limited product range when they expanded abroad. This made it possible for them to apply the International Division.

3.4. General things about matrix according to some authors

Here we summarize Numerof and Abrams, Mintzberg's and Davis and Lawrence's researches about the matrix structure. These are presented in order to give a clearer picture of a complex structure, the matrix.

3.4.1 Numerof and Abrams

Numerof and Abrams published an article “Matrix management: recipe for chaos?” in *Directors & Boards* in 2002. They do not defend the matrix, but say that it is often “misinterpreted” and “misapplied”. They note that the matrix has to be implemented thorough and it can not be some temporary impulse-solution. According to them, the following market circumstances encourage companies to consider the alternative of the matrix:

- complexity of products and services to be delivered
- customer demand for integrated services
- pressures to reduce cost

As the complexity of products and services increases, it is not feasible for one individual to manage the demands. The burden of tasks affects the quality of the product and the mental stress becomes too strong. Furthermore, customers expect more from companies. They want to drive down costs and if they use one or two supplier instead of five or six, they can reduce their costs. The pressure to reduce costs can come from other directions as well. The competition of market share is intense, and every company has to come up with new strategies in order to lower its costs. A traditional organization means duplicated functions which bind a lot of capital in form of human resources. Thus, it is expensive to have experts at every department. Through projects the experts can be moved where they are needed at the moment and when the project is finished, they can tackle the next project (Numerof et al. 2002)

According to Numerof and Abrams (2002) the adoption of the matrix structure should be carried out with caution and with sufficient planning operations. They describe four vital criterions which have to be taken into consideration when a company plans to change its organizational structure. These can also be seen as disadvantages of the matrix if the company has not managed to eliminate these aspects from the organizational structure and culture.

These advantages are:

- lack of clear expectations among employees
- inability of management to resolve power struggles
- inability of management to communicate clearly among various groups
- misaligned accountability and rewards

The management has to make it clear to the staff how the matrix structure is going to affect them. Neglecting this can lead to confusion in direction and priority. The second key aspect is coherent with Mintzberg's expression "balance of power", which is explained in the next chapter (Mintzberg 1993). The job the two managers perform together has to be integrated and balanced and they have to be very familiar with the other manager's work. The importance of communication is Alpha and Omega of the matrix. Due to the different backgrounds employees (they come from two departments) it is important that the managers can communicate in different languages. The last point is a consequence of unclear authority, roles and expectations.

3.4.2 Mintzberg and Sayles

Both Mintzberg (1993) and Sayles (referred in Mintzberg, 1993) say that the matrix structure is an excellent alternative when neither geographical nor product orientations is possible. Thus, the company avoids choosing one structure and offering the advantages of the other structure.

Mintzberg and Sayles, too, have discussed the controversial concept of dual-authority. The two authors do not see problems with the dual-reporting system where an employee reports to two managers. On the contrary, Sayles has an interesting opinion about it; he refers to the fact that most of us have grown up with two parents and are, with other words, used to take orders from two directions. However, they admit that the dual-authority system demands patience and ability to cooperate and reconcile eventual differences in opinions. This is called balance of power (Mintzberg 1993).

Sayles (referred in Mintzberg, 1993) states that the matrix structure is for grown-up organizations. He concludes that a mature company that has existed during a couple of years can change its organizational structure to a matrix. But if a new company is started the matrix structure would not be the best solution as they are small and have non-complex tasks in most cases.

Despite of Mintzberg's and Sayle's positivism, they acknowledge that there are drawbacks with the matrix structure. It causes stress, confusion and conflicts and it does not suite those who need security and stability. Employees who work in a matrix organization have to be flexible. The matrix structure sets pressure on managers which have to devote time for long-lasting discussions and meetings (Mintzberg, 1993).

3.4.3 Davis and Lawrence

Davis and Lawrence studied the matrix structure during the 1970s and concluded that there are three conditions that need to be met in order to successfully implement a matrix structure. These conditions have to exist simultaneously. The three conditions are outside pressure for dual focus, pressures for high information-processing capacity and pressures for shared resources. An explanation of each one of these is presented below.

3.4.3.1 Condition 1 – Outside pressure for dual focus

Every organization has a goal and all activities and resources are allocated in order to achieve this goal. People have different tasks in an organization and they are placed in different departments in order to guarantee as high specialization as possible. But in some cases this kind of solution is not enough. The tasks of the firm become multiple when the external environment changes and this sets press on the organizational structure (Davis and Lawrence, 1977).

An organization can be seen like a lens that reflex “the sun’s rays and bend them in to a spot of focused energy” (Davis and Lawrence, The Matrix Organization – Who Needs it?, 1977, p.12). The interpretation of this is that the purpose of an organization is to undertake tasks that are too complex for an individual to handle. Thus, at this level, the organization and the tasks of the organization are quite simple.

However, when the environment becomes complex, so does the task as well. The assignments become too many and demand more, and a single individual can not manage the tasks. The individual can not be at two places at the same time and his mental capacity is finite which makes it impossible to be an expert in all areas (Davis and Lawrence, 1977).

According to Davis and Lawrence, focusing attention on two different kinds of groupings (for example geographical and functional groupings) is the key. This is called dual-focus. The environment in which the company acts is so complex that the company cannot reach its goals and, at the same time, satisfy its customers’ needs by only using one grouping. Thus, the organization should be formed around two groupings.

3.4.3.2 Condition 2 – Pressure for high information-processing capacity

When an organization expands it must establish and maintain a network of communication channels between its members. When one individual performs a task, he can by himself coordinate all the activities. When a group of individuals are involved in performing a task, the additional cost of coordinating the information sent between individuals must be borne (Davis et al. 1977). When the cost of control is borne so is the need of minimizing them. Organizational charts, with their connections between units can be seen as information channels, not only is there a flow between the units but also within the units themselves.

High requirement for information-processing capacity generates pressure to adopt the matrix structure. The need of information-processing capacity is greater in some circumstances than in others. There are some circumstances and combinations of them that can lead to extensive information-processing requirements. There are three main factors that stress the organizations information processing-capacity, uncertainty, complexity and interdependence (Davis et al. 1977). These are explained in more detail below.

Uncertainty

Demands placed on the organization can be relatively unpredictable and often shifting. There would not be much new information if demands were predictable or stable, thus limited information that needs to be processed or adjusted. If the environment is stable, the plans could be made for the future and these would often prove valid. There would seldom be a need of rethinking or reprocessing information and everything would go as planned (Davis and Lawrence, 1977).

When the environment is uncertain the need of information-processing will be greater and thus strain the organizations information channels. If markets change suddenly, competition is fierce and the market is fluctuating and there will be a need of processing multiple information in order to make the correct assumptions about the future (Davis and Lawrence, 1977).

Complexity

Diversification in more than one dimension would greatly increase the complexity of the firm, thus demanding more information to be processed within the organization. If the firm is both trying to diversify its product and market, the complexity of the firm multiplies. New knowledge has to be created, processed and distributed amongst the individuals in the organization (Ibid).

Interdependence

The interdependence amongst individuals in an organization also defines the amount of information traveling in the different channels. If the interdependence is high, i.e. individuals are dependent of each other; more information has to be distributed in the organization (Davis and Lawrence, 1977).

If the tasks of an organization are simple and people can manage their tasks without discussing the issue with the others, the requirement for information-processing capacity is low and there is no interdependence between the individuals. If the tasks require a lot of communication and discussion, the individuals need to share information in order to manage their tasks (Ibid).

3.4.3.3 Condition 3 – Pressures for shared resources

The last condition is the pressure to achieve economies of scale in terms of human resources, high performance in terms of costs and benefits and capital and physical facilities (Ibid). External factors, like changing market possibilities, enhance the pressure for economies of scale and more efficient performance. In order to meet high-quality standards, the organization needs to utilize and redeploy the existing human resources. When doing this the company shares the existing resources within the company instead of having to buy expensive external solutions. Sharing resources contains not only human resources, but also capital and physical facilities. Several production units may need access to the same large capital investments, for example expensive machinery. It may not be possible for each unit to acquire their own equipment. The organization has to act as a unit where all the resources are common and can therefore be moved between departments when necessary (Davis and Lawrence, 1977).

All companies feel the pressure for high performance, but not to the same extent. A company which has a dominant position in the market may feel

secure and confident and do not experience the need of increasing performance and economies of scale that high (Davis and Lawrence, 1977). In comparison, small companies that have a smaller marketshare may be forced to constantly improve their product and add value in order to survive. Nevertheless, they may have limited capacity and resources and they have to make the best possible use of their assets. Larger companies, on the other hand, have better resources and conditions to acquire expensive and highly specialized experts and consults that can develop business strategies when needed (Ibid).

Davis and Lawrence (1977) claim that it is more difficult for traditional and conventional organizations to redeploy their specialists. These kinds of organizations can often be described as formal and strict where it is complicated to carry out organizational changes. An organization, which acts in a complex environment, ought to be flexible so that people can work on more than one task. This enables companies to utilize their human resources, capital and physical facilities more efficiently.

3.5 Summary

Considering that the International Structural Stages Model is an essential part of this dissertation, a detailed description of the model was needed. It is important for the reader to understand how the model is structured and which role the different parts of the model have. The model shows the structural alternatives for a company which plans to expand abroad. The first stage in the model is the International Division. The second stage depends on the vision and the goal of the company, thus a choice between the Worldwide Product Division and the Worldwide Area Division can be made. The final stage is the Matrix. These components are summarized in this chapter as well. In the end of this chapter we discussed Bartlett and Ghoshal, Franko's, Numerof and Abrams, Mintzberg's, Sayle's and Davis and Lawrence studies.

4. The new model

This chapter describes the new International Structural Stages Model to which the Information-Processing-Need dimension is added.

4.1 Introduction

It may be difficult to draw the line between traditional organizational structures and the matrix structure, and give an exact answer to when the matrix structure can be recommended. Both our model and the International Structural Stages Model have clear boundaries of when each structure is applicable. However, these are theoretical and should be considered as grey zones. The boundaries are not carved in stone; organizations are living organisms and must be considered as such, there are no clear cut lines in reality.

The matrix structure is not a goal in itself; it is a tool preferably used when the firm acts in a complex surrounding. Davis and Lawrence (1977) state that there are other organizational solutions than the matrix, which should be considered if the environment is not complex. We use the word “should”, because the adoption of the matrix structure, which is based on inadequate grounds, can lead to serious consequences in form of diminished revenues and marketshares.

Stopford and Wells (1972) use two dimensions to explain the process towards the matrix structure, Foreign Product Diversity and Foreign Sales as Percentage of Total Sales described in chapter 3.1. Firms used the International Structural Stages Model as a descriptive model of which structure was needed at the present and for the future. As the model is an oversimplification of reality (Bartlett and Ghoshal, 2000), many firms abandoned the matrix structure and blamed it for being too complex. In

reality it may very well have been their organizational needs that were simpler, thus the matrix only added complexity instead of solutions. Necessary conditions were possibly overlooked; they were not in a need of a matrix structure, but they were in a need of a restructuring.

According to Davis and Lawrence the presence of all the three conditions is a necessity for a matrix structure to be more efficient than a simple organizational structure. The three conditions are Outside pressure for dual focus, Pressure for high information-processing capacity and Pressures for shared resources. Each of the conditions has been described in detail in chapter 3.4.3.

In this dissertation we will combine both the International Structural Stages Model and Davis and Lawrence theories and thus be able to better explain the conditions that need to be fulfilled for a successful implementation of the matrix structure. We will also be able to better visualize the complex needs that the organization would have to have in order to gain from the matrix structure. We argue that the Information-Processing-Need is of great importance and should be a part of the model. We will implement a third dimension to the International Structural Stages Model, the Information-Processing-Need dimension. The new dimension and our model are explained below.

4.2 Information-Processing-Need

An individual's mental capacity is finite; therefore there is a limit of his information-processing capacity. When one individual performs a task, he can by himself coordinate all activities. When a group of individuals are involved in performing a task, the additional cost of coordinating the information sent between individuals must be borne. When the cost of control is borne, so is the need of minimizing them, as a firm with a lower cost-structure *ceteris p'aribus*¹ would have a comparative advantage. The

¹ Everything else the same

same conclusion can be made for a division within the organization. As long as the division is not dependent upon other divisions of the organization they have the possibility of using a simple structure (Lawrence and Davis 1977).

These arrangements work fine as long as the information channels does not become overloaded, resulting in logjams in the organization. Information will disappear when the information channels becomes overloaded. When information logjams appear within the organization the solution most often is to better clarify job descriptions, improve the schedules or better fitted computer programs. If this simple organizational tweaking does not give the needed result, possibly the only way of solving the problem is by fundamentally redesigning the organization (Davis and Lawrence 1977)

The information-processing capacity would be greater in some circumstances than in other. There are some circumstances and combinations of them that can lead to extensive information-processing requirements. There are three main factors each by it self or together that stresses the organizations Information-Processing-Need; uncertainty, complexity and interdependence, which are described in detail in chapter 3.4.3.2.

By adding the Information-Processing-Need to the existing axis of Stopford and Wells International Structural Stages Model we get a three dimensional model, shown in figure 4.1 below.

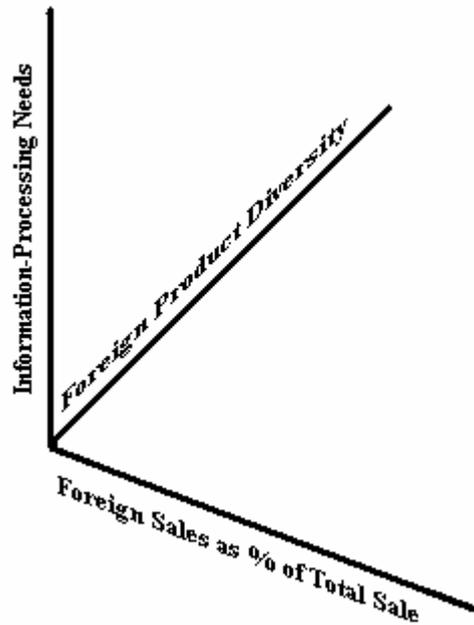


Figure 4.1 The three dimensions of the New International Structural Stages Model

The axis developed by Stopford and Wells were divided in three categories for each axis. Foreign Product Diversity was divided as “None”, “Low” and “High” and Foreign Sales as Percentage of Total Sales were divided as “0-20 %”, “21-39 %” and “over 39 %”, each described in detail in chapter 3.1. We have divided the Information-Processing-Need as well in three categories, “Low”, “Moderate” and “High”. This is shown in the picture below.

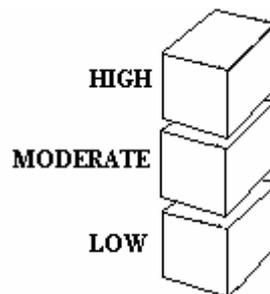


Figure 4.2 The different levels of the Information-Processing-Need

The reason for not using “None”, “Low” and “High” is that no organization has no use of processing information. All organizations have to gather,

asses, process and distribute information to some extent within the organization.

The New International Structural Stages Model is as described earlier divided into blocks, “None”, “Low” and “High”, and each dimension has three possibilities, resulting in a total of 27 blocks (3x3x3) that organizations can be classified into. The figure 4.3 below presents the three dimensions on each axis, Information-Processing-Need is represented with the vertical boxes and Stopford and Wells two axes are described with the horizontal boxes.

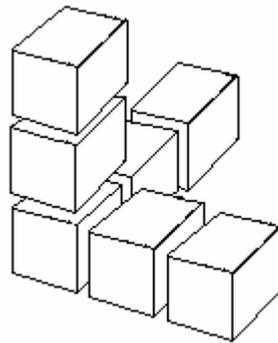


Figure 4.3 The different levels of the New International Structural Stages Model

In the figure 4.4 below the International Division is represented as a blue box in the down left corner, the position is the same as in Stopford and Wells (1972) International Structural Stages Model. The international Division is also placed as “low” in the Information-Processing-Need dimension as they are presumed as acting in a simple environment; the assumption is based on rationality. A firm would not choose a more complex structure than needed.

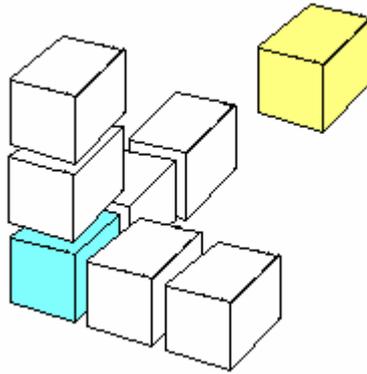


Figure 4.4 The positions of the International Division and the Matrix

The yellow box represents the matrix structure. The matrix is placed on the horizontal level as “over 39 %” of Foreign Sales as a Percentage of Total Sales and as “high” in Foreign Product Diversity. On the Vertical axis it is placed as “high” in the Information-Processing-Need dimension. The horizontal placement is consistent with Stopford and Wells model. The vertical placement is due to the complex environmental demands an organization would have to face to benefit from a matrix structure. As we previously described, reality is not as clear cut as the model seems, there are always exceptions.

To clarify the New International Structural Stages Model we have chosen to put boundaries of the different structures as lines instead of as boxes. This will make the model visually more comprehensive. The same colors are used to describe the structures as before, blue represents the International Divisional structure and yellow represents the Matrix structure. The New International Structural Stages Model is presented in figure 4.5 below.

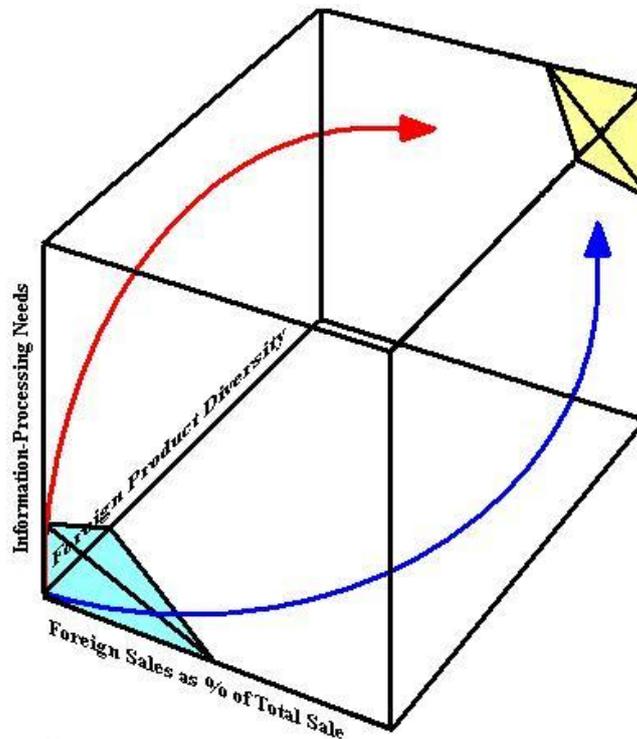


Figure 4.5 The New International Structural Stages Model

The arrows in figure 4.5 represent the structure as the organizations move from the International Divisional structures toward the Matrix structure. The red arrow represents the Worldwide Product Division and the blue represents the Worldwide Area Divisional structure. The gradual increase along the way from the International Divisional structure to the matrix structure in the horizontal level is the same as in the International Structural Stages Model described in chapter 3.1. The gradual increase in the vertical level represent the gradual complexity added to the firm as they expand, the need of information processing becomes higher as the complexity of the firm increases. In our model the movement is shown as a movement in three dimensions instead of as in two dimensions as Stopford and Wells (1972) described in the original International Structural Stages Model.

4.3 Why is the Information Processing-Need needed?

Davis and Lawrence (1977), as described earlier in chapter 3.4.3., concluded that there is a need of three conditions for the matrix structure to be successfully implemented and gainful to the organization. Stopford and Wells used two dimensions to explain the need of the matrix structure.

Theoretically a high score on all three dimensions is needed according to our model to gain from implementing the matrix structure. If only one or two dimension are present, other structures would better suit the organization as the matrix then only would add complexity to the organization. A theoretical discussion follows below.

An organization which has both “over 39 %” of Foreign Sales as a Percentage of Total Sales and “high” in Foreign Product Diversity, would according to Stopford and Wells (1972) be fitted for a matrix structure. According to us the organization must fulfill another condition; the Information-Processing-Need would also need to be high.

If the surroundings of the organization are not uncertain, and their organizational tasks are not complex, then there is no need of a matrix structure. Simpler organizational solutions would be more fitted in these situations. The firm can be present in many countries and produce different products to each market; this in itself does not mount up to a need of a complex organizational structure. If we consider a very stable market, with an oligopolistic environment, performing a simple task, then the need of a matrix structure is not present according to us.

We will conduct a survey to see if there actually is a significant difference between Non-matrix structured and matrix structured organizations to validate or reject our model.

4.4 Summary

In this chapter we have described the New International Structural Stages Model, which is based on the original International Structural Stages Model. We have combined Stopford and Wells (1972) and Davis and Lawrence (1977) theories and from these developed the new model. We have shown how this model is constructed and argue for it.

5 Empirical framework

The empirical framework is presented in this chapter. We start with a short description of the research strategy, which is followed by the questionnaire, the analysis of the questions and the hypothesis. Finally, population, reliability, validity and generalisability are discussed.

5.1 Research Strategy

With the help of our research questions we formed three hypotheses concerning multinational organizations. These hypotheses were then tested with a survey. The survey was done as a phone interview on 50 of the 100 largest international firms with extensive business activities in Sweden. The firms were chosen from a list published in the book *Sveriges Näringsliv* by Fagerfjäll (2002).

Our survey is quantitative and fits our deductive approach well, as we aim to generalize our findings on multinational firms. We have used SPSS which is a statistical computer program for analysing the result of our survey. With the help of SPSS we can statistically validate or reject our hypotheses which in turn will help to answer our research question.

5.1.1 Selection Method

This dissertation focuses on multinational enterprises. Stopford and Wells (1972) chose their population from *Fortune's* 500 list of the largest manufacturing enterprises in America. We chose the list published in *Sveriges Näringsliv* of the 100 largest international enterprises with extensive business activities in Sweden.

The list is sorted after the number of employees all over the world; the one with the most employees as number one and the one with the least number of employees as number one hundred. We used a random generator to randomly generate our fifty enterprises; this is called simple random sampling (Saunders, 2005). According to Saunders three phone calls should be made per firm, thus generating 150 phone calls in this survey if 50 companies were chosen. Due to the time limitation of this dissertation, 150 phone calls were seen as an upper limit.

Since time is a limitation we could not make qualitative face to face interviews; we chose telephone interviews over email questioners, to get a higher response rate (Ibid).

5.2 Hypotheses

According to Stopford and Wells (1972) a firm would implement the matrix structure when its Foreign Product Diversity and Foreign Sales as a Percentage of Total Sales are both high. Bartlett and Ghoshal (1992, 1990 and 2002) have criticized the International Structural Stages Model for being oversimplified as the model only considers these two variables. They suggest that a cultural dimension is missing in the model. Davis and Lawrence, on the other hand, suggest that there are three conditions that need to be met before an organization can successfully implementate the matrix structure. As described in chapter 4 covering our developed model, the Information-Processing-Need seems to be missing in the International Structural Stages Model.

We will test if there is a significant difference between matrix structured and non-matrix structured organizations in the need of processing information. We will also test if Bartlett and Ghoshal's cultural dimension significantly differ from matrix structured to non-matrix structured organizations.

Hence we hypothesized that:

H₁

A firm which acts in an uncertain environment and with a dual focus, would have a multiplied complexity, thus a great demand of information-processing would be needed.

Accepting the limitation of rationality, firms must be believed as acting rationally. Otherwise no conclusion is possible to draw from the results. A firm would not implementate a more complex structure than rationally needed. This is also consistent with the fact that the matrix structure only would add complexity if implemented in an organization which would not benefit from it. The dual command would not benefit the organization if both the environment and the tasks the organization performed were simple or static as argued in chapter 4. If one single individual could comprehend all information and make rational decisions, then the matrix structure would only add unnecessary complexity, thus making it irrational.

When the environment is uncertain, i.e. unknown development, combined with a dual focus, it would multiply the complexity of the organization severalfolded. If the firm both focus on a multitude of markets and try to diversify its products, a large amount of information would have to be processed to enable rational decisions. When the environment is uncertain, plans can not be prepared for the future, as they most probably would not hold true. However, if they held true the environment would not be considered uncertain. When combining these factors the Information-Processing-Need would be great, thus a firm would benefit from the matrix structure. We test this with the help of question three, and a mean value for questions five and six. If a firm have chosen a dual focus in question three and they act in an uncertain environment in question five and six, then the complexity of the firm is multiplied. In that case the organization would rationally benefit from the matrix structure.

H₂

There is a difference in Information-Processing-Need between matrix structured organizations and non-matrix structured organizations.

As earlier discussed, if a conclusion shall be made, accepting every firm as rational is a must. We believe that firms have implemented the matrix on sufficient grounds and therefore the Information-Processing-Need would significantly differ if the variable is correctly assumed. If there is no difference between the organizational structures then the Information-Processing-Need is not a correctly assumed variable. We test this with the help of a mean value for questions four, five and six and compare the non-matrix and matrix structured organizations.

H₃

We assume that the affect of culture does not significantly differ between matrix structured organizations compared with non-matrix structured organizations.

Bartlett and Ghoshal (2000) argue for the need of a cultural dimension. They claim that Stopford and Wells have neglected this important dimension by not incorporating it into their model. Within any multinational corporation, differences are bound to exist in norms and values as employees come from different backgrounds, both with regard of their education and their nationality. We argue that within a multinational enterprise these differences are not something that on a day to day base would affect the employees; they have their chores, which already are assimilated to their colleges' chores. Thus their individual difference has already been assimilated to fit the overall culture of the firm. If the corporation had not assimilated the cultural differences, the overall task of the organization would not be possible.

This constitutes that there would not be a difference between the cultures of different structures. When viewing the organization at this moment, a form of static organizational picture is taken. We argue that the culture is a

dynamic dimension, which only needs to be considered in the time of change. When a restructuring of the firm is needed, then the time for viewing the difference between norms, values, backgrounds and beliefs must be considered. When the time for restructuring the organization comes, the importance of the cultural dimension appears and this is why we argue that the cultural dimension is dynamic and would not in it self constitute a variable for change. The firm have already assimilated the cultural differences and these would not have to be considered unless the organizational structure has to be changed. The cultural dimension does not by it self constitute a variable for the overall change of a structure if there is no difference between the structures. If there is no difference between structures with regard of the cultural dimension, then what value does it add to the model? This is why we argue that the cultural dimension should not be a part of the New International Structural Stages Model. The cultural dimension is tested with the help of questions seven and eight.

5.3 The questionnaire

The purpose of this dissertation is to find out whether it is possible to develop the International Structural Stages Model by adding a new dimension to it. Our hypotheses were transformed into a questionnaire and tested on our population.

A questionnaire that is designed carefully is the key to a successful survey (Saunders, 2005). The construction of the questionnaire affects validity and reliability highly, and in order to improve them we tested our questionnaire on five companies. This gave us possibility to adjust some questions. Our test showed that the test companies misunderstood the first question, so when we made the final research we made it clear for the respondents that we were referring to the overall strategy. When it comes to question five, our test companies did not understand the time interval. In the final research, we specified that number “5” reflects “once every year”, number “1” reflects “more rarely than once in a year”, and number “10” reflects “more often than once in a year”. The questions 6-8 were adjusted after the

pilot-test to clarify and be more specific so that misunderstandings would be limited. (See appendix 2)

We have not specified the size of the companies, the length of the respondents' employment or their occupations. These questions are ordinary, but we called the press officer at each company, and we assume that the person who works there have the information we need. We are not studying organizational changes over a long time, but we are asking them about their present situation, so the fact how long they have worked at the company is not relevant. Furthermore, we assume that the persons who work at the press office are aware of the company's history.

According to Saunders (2005) a questionnaire should not be too long. Our questionnaire consists of eight relevant questions. Out of these eight questions, the two first questions help us divide the companies into three categories: companies with the matrix structure, companies that do not have the matrix structure and companies that have had the matrix structure. These questions are yes- and no-questions. The questions 4-8 were designed as a 10-point numeric rating scale where "1" reflected "Non-existent" and "10" reflected "Overwhelming". Question four tests interdependence and questions five and six test uncertainty. Questions five and six together with alternative "c" in question tree test the complexity of the firm. Questions seven and eight test the cultural dimension.

5.4 Population

We have focused on 50 international companies which were randomly selected from the list of 100 largest international companies with extensive business activities in Sweden. The list was published in *Sveriges Näringsliv* (2002).

5.5 Reliability

A questionnaire should be designed in a way that it is easy for the respondent to understand the questions and answer them (Saunders, 2005). He suggests that a pilot test is made in order to discover eventual misunderstandings or misinterpretations. We tested our questionnaire on five international firms quoted on Stockholm's stock exchange market. The tests were very valuable for us, as we adjusted some of the questions in order to avoid similar misunderstandings during the final interviews.

There are some threats toward the reliability of a questionnaire. Participant error describes the time aspect of the interview. There could be a difference in answers depending on which day of the week the interview is made (Ibid). Participant bias occurs when the respondent gives an answer based on what he/she thinks the manager would like him/her to answer (Ibid). Furthermore, the answers are individual and subjective and it is possible that we would have obtained different answers if we had asked the same questions to another employee within the same organization.

Observer error is based on the interviewers. If a phone interview is made by more than one interviewer, the answers can differ due to the many versions of explaining the questions (Ibid). To minimize the observer error we chose to let one of the authors do all the interviews in order to eliminate this risk.

5.6 Validity

High validity is very important when making a survey. To have a valid questionnaire, the data collected has to be accurate and of interest to the study (Ibid). According to Saunders (2005), there has to be "a causal relationship" between two variables. Thus, we have to be able to establish that the outcome of the study depends on one specific variable.

A questionnaire has to be designed properly and the questionnaire should measure the purpose of the study. The questions should be relevant and

suitable for the purpose of the survey (Saunders, 2005). We believe that this is the case. We designed three hypotheses first and our questionnaire is based on these hypotheses. However, the respondents make a subjective appraisal of the questions and the answers and it is not possible to eliminate this factor.

In order to avoid misunderstandings, we tested our questionnaire on five test companies. It appeared to be a good solution, as the test companies misunderstood some questions. We adjusted those questions before the final survey.

5.7 Generalisability

The concept of generalisability refers to the possibility to draw general conclusions which explain the behavior or the attitude of a whole population, although the study only was made on a small number of respondents (Saunders, 2005). There are some factors that affect the generalisability. A small number of respondents make it more difficult to generalize because the sample does not represent the reality. If a survey is conducted on organizations that are “different” in some way, it may be impossible to generalize the results.

Our study was made on large international multinationals that have extensive business activities in Sweden. These companies, 50 multinationals, represent companies from different branches.

Stopford and Wells (1972) have generalized their results, although they had a response rate of 37 %. Although our sample is small, we believe that we can generalize the results. Our response rate is presented below.

5.8 Response rate

According to Saunders (2005), response rate should be 50-70 % with a telephone interview. We did not manage to reach this level. We have a

response rate of 36 %. This can depend on many different reasons: we did not reach all the respondents although we tried to call them more than three times. Some of the respondents wanted the questionnaire by email, some could not answer for the whole organization, but only for their division and some did not want to participate at all.

5.9 Summary

The empirical framework was discussed in this chapter. Before carrying out the study, three hypotheses were designed and a questionnaire consisting eight questions was constructed in order to reach the purpose of this dissertation. The population of this study consists of 50 international companies with extensive business activities in Sweden and the survey was conducted with help of telephone interviews. The response rate of the survey was 36 %. We finished the chapter with a discussion about reliability, validity and the generalisability of the study.

6. Results

In this chapter we will present our results from the survey and compare them with our hypotheses. We have statistically tested them with SPSS to see if there is a statistically significant difference between the matrix and non-matrix structures.

6.1 Distribution

We have collected data from 18 firms regarding their organizational structures and these companies represent 36% of our population. In the first question we divided the firms into two groups, “non-matrix” and “matrix” structured firms. With the second question we wanted to find out if those companies that answered that they presently do not have the matrix structure have ever had the matrix structure as an overall structural form. It should be noted that out of the total 18 firms, 11 had the matrix structure and 7 does not have the matrix structure. Out of the seven “non-matrix” structured organizations, two have previously had the matrix structure. Due to the distribution, the “have had matrix” organizations are only considered as “non-matrix”, because we cannot statistically prove anything based on two respondent firms. We consider the “have had matrix” as “non-matrix” due to the fact that they presently do not have the matrix structure.

All the tests of significance are made with the help of Mann-Whitney U – test, which can be used when the data can be divided into two samples. Our survey consists of “non-matrix” and “matrix” structured companies, and these two groups are used for the grouping. Furthermore, our sample consists of 18 companies, as the condition for using the Mann-Whitney U-test is that the sample must consist of 30 objects maximum. The results of these tests can be seen in *Appendix 3*.

Table 6.1 Questionnaire Response and the Distribution

<i>Structure</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Cumulative Percentage</i>
Matrix	11	61	61
Non-Matrix	5	28	89
Have had Matrix	2	11	100
Total	18	100	

Table 6.1 shows the distribution between the matrix structured organizations, non-matrix structured organizations and those that have had the matrix structure. The distribution is uneven, and that depends on the fact that the first question divided the population into two groups and then we divided the “non-Matrix” group into two additional groups. The real distribution is as following: 61 % of the companies had the matrix structure and 39 % were non-matrix structured organizations. This is how we tested and analysed them.

We have chosen to test if the firms focus on differentiating their products, markets or both of these. In table 6.2 below the alternative “A” reflects “We choose a market that fits our product”, alternative “B” reflects “We develop a product that fit our market”, and alternative “C” reflects “A mixture of both above”. In table 6.2 below, the different structures and their different market focus are represented.

Table 6.2 Respondents divided into different market-focus groups

<i>Structure</i>	<i>All</i>	<i>Matrix</i>	<i>Non-Matrix</i>	<i>Have had Matrix</i>
A	0%	0%	0%	0
B	39%	57%	29%	14%
C	56%	60%	30%	10%
D	5%	100%	0%	0%
Total	100%			

The table above shows that there is no firm that has chosen the alternative “A”, according to which a company develops a product first which the company then sells on most of their markets. 39 % of all the companies answered that they develop a product for a specific market. 56% of all the companies responded that they both diversify their products and sell those on most international markets. Finally, only one of the companies answered “D”; none of the alternatives fit their organization and this represents 5 %. However, that company could not specify the answer.

6.2 Hypothesis 1

Our first hypothesis is *“A firm which acts in an uncertain environment and with a dual focus, would have a multiplied complexity, thus a great demand of information-processing would be needed”*.

We have excluded those organizations that do not have a dual focus, as they do not meet the first condition of complexity. Thus, the companies that have answered “C” to question three have a dual focus. We test this hypothesis with the help of question three, a mean value for question five and six compare it with which structure they presently have.

The mean value for questions five and six for the firms that have stated a dual focus is presented in table 6.3. The value is rounded of to one decimal

Table 6.3 Mean values for questions five and six

Structure	Mean	N	Standard Deviation
Non-Matrix	4,6	4,0	1,4
Matrix	7,8	6,0	1,8
Total	6,5	10,0	2,2

As can be seen from the table above, the mean value for the non-matrix structured organizations represents a moderate uncertainty. The mean value

for the matrix structured organizations is in the high moderate, almost in the region classified according to us as high.

We consider that if a firm has chosen the dual focus, the company could be viewed as a more complex organization, as it differentiate both its market and its product. If the firm then in addition state that they have a high uncertainty, this would add additional complexity to the organization. These would constitute two complex conditions that should be solved parallel to each other. The result of the Information-Processing-Need is presented below in table 6.4.

Table 6.4 Dual focus and the need for Information-Processing

<i>Crosstab of Dual Focus</i>			Structure		Total
			Non-Matrix	Matrix	
<u>Both mentioned</u>	Fraga 5,6	2,50	1	0	1
		5,00	1	1	2
		5,50	2	0	2
		6,50	0	1	1
		8,00	0	1	1
		8,50	0	2	2
		10,00	0	1	1
	Total		4	6	10

In table 6.4 above, alternatives “8-10” reflect “high uncertainty”, alternatives “4-7” reflect “moderate uncertainty” and alternatives “1-3” reflect “low uncertainty”. This distribution is based on the discussion in chapter 4.2. As can be seen in table 6.4, there is no non-matrix organization that has stated that they face a high uncertainty combined with a dual focus, see the green field in the table. There is however one matrix structured organization that has a low uncertainty, see the yellow field.

We can conclude that there is a statistical significant difference between the non-matrix and matrix structured organizations when it comes to uncertainty, even if considering all options in question three. The firms that have chosen the matrix structure as an overall structure have a more uncertain and complex environment, see *Appendix 3*. This supports our hypothesis.

6.3 Hypothesis 2

The second hypothesis is “*There is a difference in Information-Processing-Need between Matrix structured organizations and Non-Matrix structured organizations*”.

The Information-Processing-Need is asked in questions four, five and six, and with alternative “C” in question number three. As the Information-Processing-Need consists of three main variables, uncertainty, complexity and interdependence, each of these variables contribute to the Information-Processing-Need. An organization can have variations of these, one can be low and the other two very high, but the mean values for these questions represent the company’s total Information-Processing-Need. The mean value for the Information-Processing-Need is presented in table 6.5 below and the value is rounded of to one decimal.

Table 6.5 Mean values for questions four, five and six

Structure	Mean	N	Standard Deviation
Non-Matrix	6,3	7,0	0,8
Matrix	8,0	11,0	1,3
Total	7,4	18,0	1,4

The mean value for questions four, five and six is lower in the non-matrix structured organization. The non-matrix structured organizations’ mean value represent a moderate need of Information-Processing-Need. The matrix structured firms have a mean value that represents a high Information-Processing-Need.

The mean values for questions four, five and six and the structure of the companies are presented in table 6.6 below.

Table 6.6 Mean values for questions 4-6, the Need for Information-Processing

Crosstab of Total information-Processing			Structure		Total
			Non-Matrix	Matrix	
<u>We develop a product that suit our market</u>	Mean 4 5 6	5,60	1	0	1
		7,00	1	0	1
		7,30	1	0	1
		8,00	0	2	2
		9,00	0	1	1
		9,30	0	1	1
	Total		3	4	7
<u>Both of the mentioned</u>	Mean 4 5 6	5,00	1	0	1
		6,00	2	1	3
		7,00	1	1	2
		8,00	0	1	1
		8,60	0	2	2
		10,00	0	1	1
Total		4	6	10	
<u>Other</u>	Mean 4 5 6	6,00		1	1
Total			1	1	

Table 6.6 above shows that there is no non-matrix structured organization that has a high need of information-processing combined with dual focus, not even when considering the alternative “We develop a product that suit our market”. In this question as well, alternatives “8-10” reflect “high uncertainty”, alternatives “4-7” reflect “moderate uncertainty” and alternatives “1-3” reflect “low uncertainty”.

We can conclude that the difference in Information-Processing-Need for non-matrix and matrix structured organizations is statistically significant, see *Appendix 3*. This supports our hypothesis.

6.4 Hypothesis 3

The last hypothesis is “*We assume that the affect of culture does not significantly differ between matrix structured organizations compared with non-matrix structured organizations*”.

In table 6.7 below the mean values for questions seven and eight are presented. The value is rounded of to one decimal.

Table 6.7 Mean value for questions seven and eight

Structure	Mean	N	Standard Deviation
Non-Matrix	4,8	7,0	2,0
Matrix	6,4	11,0	1,7
Total	5,8	18,0	2,0

As can be seen in the table above, the non-matrix organization has a lower mean value compared with the matrix structured organizations.

A crosstabulation of the cultural dimension is shown in table 6.8. The table shows a mean value for questions seven and eight compared to which structure the organization has.

Table 6.8 Cultural dimension

Crosstab Cultural dimension		Structure		Total
		Non-Matrix	Matrix	
Mean value of cultur	2,50	1	0	1
	3,00	1	0	1
	3,50	1	1	2
	4,00	0	1	1
	4,50	1	0	1
	5,00	0	1	1
	5,50	0	1	1
	6,00	2	0	2
	6,50	0	2	2
	7,00	0	1	1
	7,50	0	1	1
	8,00	1	2	3
	9,00	0	1	1
Total		7	11	18

Although there seems to be a difference between non-matrix and matrix structured organizations, the difference is not statistically significant. Neither of question seven or eight shows a significant difference, not a mean value of them either. This supports our hypothesis. We can conclude that there is no significant difference between the structures when comparing the cultural dimension, see *Appendix 3*.

6.5 Summary

In this chapter we have presented the results from our survey. All of the tables are made with the help of SPSS and Microsoft Excel. The results were presented under each hypothesis. All data needed for conclusion is presented in this chapter. The hypotheses are summarized below.

Table 6.9 Summary of the hypotheses

Hypothesis	Validated	Redjected
H ₁ A firm which acts in an uncertain environment and with a dual focus, would have a multiplied complexity, thus a great demand of information-processing would be needed.	X	
H ₂ There is a difference in Information-Processing-Need between Matrix structured organizations and Non-Matrix structured organizations.	X	
H ₃ We assume that the affect of culture does not significantly differ between matrix structured organizations compared with non-matrix structured organizations.	X	

7 Inference

In this chapter we summarize the dissertation and connect the findings of our study to both our model and other researchers' findings. In the end of this chapter we describe the relevance of our dissertation. Furthermore, some self criticism and ideas for further research are given.

7.1 Analysis

As we pointed out in chapter 4, covering the New International Structural Stages Model, organizations are living organisms and must be treated as such. There are no clear boundaries in reality, there is no best solution. There are however guidelines, drawn from knowledge gathered both by research and experience.

Our model is based on Stopford and Wells (1972) model, the International Structural Stages Model. Their model consists of two variables, Foreign Product Diversity and Foreign Sales as a Percentage of Total Sale, described in chapter 3.

Stopford and Wells (1972) way of defining an organization's structural need is rather brute. Bartlett and Ghoshal (2000) criticized their model and claimed that it was an oversimplification of the organizational need faced by a multinational organization. According to them, Stopford and Wells model only covers what they define as the anatomy of the organization, and disregarding the physiology and psychology of the organization. Both of these are described in detail in chapter 3.

Davis and Lawrence (1977) conclude that there are three conditions that need to be fulfilled before an organization successfully can adapt the matrix structure. The first of these conditions is outside pressure for dual focus,

described similarly to Bartlett and Ghoshals (2000) anatomy. The outside pressure for dual focus is thus similar to Stopford and Wells (1972) International Structural Stages Model. Davis and Lawrence describe the dual focus similarly to Stopford and Wells model, both argue for product versus market. Stopford and Wells model is structurally biased as it does not consider the other factors put forth both by Bartlett and Ghoshal, and Davis and Lawrence, this is the reason to why we have developed it.

Franko (1976) described the difference of the internationalisation process in *The Organization of Multinational Manufacturing*, described in detail in chapter 3.3. The main difference according to Franko was that European firms often went directly from the mother-daughter structure to one of the global structures. The American firms went from president-to-president via the International Divisional structure to the global structures. To research the difference between the American, European and Swedish Structural process will be discussed in chapter 7.6, under further research. In this dissertation we have used the International Structural Stages Model as a base; the difference according to Franko (1976) is mainly in the early stage. Our population consist of all nationalities; the factor that connects them is that they are large international organizations with extensive activity in Sweden.

We have used Stopford and Wells International Structural Stages Model as a base for our model and it represents the horizontal part of our model, explained in chapter 4. The axes represent the same in our model as in the International Structural Stages Model. These are used for testing the dual focus of a firm which is regarded as anatomy by Bartlett and Ghoshal (1992) and as condition 1 by Davis and Lawrence (1977). We are aware of the difference between the European and the American development, thus we have put this as a limitation in this paper as our population consists of both.

The vertical part of our model represents the Information-Processing-Need. Davis and Lawrence (1977) considered the Information-Processing in their

second condition, Pressure for high information-processing capacity. Their second condition is regarded as the organizations physiology by Bartlett and Ghoshal (1992). We tested if there was a significant difference between non-matrix and matrix structured organizations Information-Processing-Need and the difference is significant. The results were presented in chapter 6.

This is reverse proving; when accepting every firm as perfectly rational their structural choice must be considered perfectly rational. When the need of Information-Processing is high, the organization would benefit from the matrix structure. To further validate our Information-Processing-Need dimension we constructed hypothesis 1. As shown in chapter 6 there is a significant difference between non-matrix and matrix structured organizations perceived uncertainty, the matrix organizations have a more uncertain environment than the non-matrix structured organizations. Thus, they have a higher Information-Processing-Need.

This answers our first research question: *Are there additional factors that affect the structural needs that are not considered in the International Structural Stages Model?* Our hypotheses are statistically validated and confirm the presence of the Information-Processing-Need dimension. This in turn is the additional dimension we have added to Stopford and Wells International Structural Stages Model. The Information-Processing-Need is used to develop our model. With this in mind, the answer to our first research question is yes. There are additional factors that affect the structural needs that are not considered in the International Structural Stages Model. This also answers our second research question: *Is it possible to develop the International Structural Stages Model?* The answer is yes. Our model is a developed version of Stopford and Wells International Structural Stages Model and their model is presented in chapter 3.

Bartlett and Ghoshal (1992) argue for the presence of a third variable that must be considered, the cultural dimension. As we argued in chapter 5 under hypothesis three, we presume that there is no difference between the non-

matrix and matrix organizations. We argued that the cultural dimension should not be a part of the New International Structural Stages Model. We argued that on day to day bases the need of considering the cultural dimension would not significantly differ between structures. This hypothesis was confirmed by our survey and it was statistically significant. We do not claim that the cultural dimension should not be considered; we argue that it needs to be considered in the time of change and should thus not be a part of the New International Structural Model. We found that there is no significant difference between the non-matrix and the matrix structured firms when it comes to the cultural dimension on a day to day base.

7.2 Summary of the Dissertation

The New International Structural Stages Model indicates which structure is needed, not how they should change it. We have included the Information-Processing-Need dimension into the International Structural Stages Model as the environment and the task the organization performs affects the structural need. We have argued for not implementing the cultural dimension into the New International Structural Stages Model. The aim with the model is to clarify the different needs and solutions each structure provides, not how to change them. There is room for misinterpretations; the model is a process model, as it shows the process of how firms change. The important thing to have in mind is that the model does not cover how to change the structure; this is why the cultural dimension should not be incorporated in the model. We have summarised our findings in the picture below.

International Structural Stages Model \approx Anatomy \approx Condition 1

+

Physiology \approx Condition 2



The New International Structural Stages Model

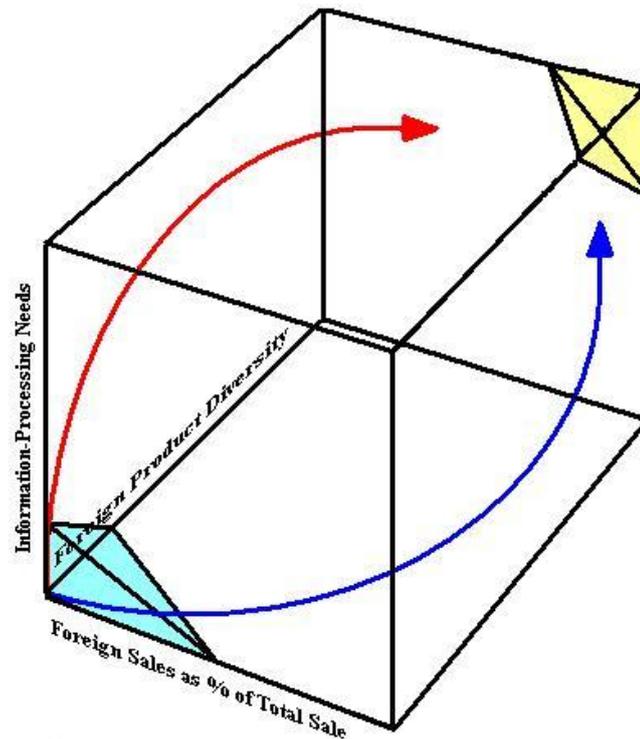


Figure 7.1 The inherent components of the New International Structural Stages Model

7.3 Aspects of our findings

There are some aspects in this dissertation that should be kept in mind when interpreting the dissertation. The first aspect is that the New International Structural Stages Model shows a static image of the organization, or what they should be, not how to get there.

The second aspect is the environment in which a company acts. We believe that there are similarities between multinational companies and their surroundings, but we are aware of the variations. Each company is unique

and usually the structure of the company is path-dependent. As we have stressed earlier, both the International Structural Stages Model designed by Stopford and Wells and the New International Structural Stages Model are very theoretical. Furthermore, they only show the development of structures and how they change over time. Neither of these models suggests how the process of change should be done. This fact should be taken into consideration when interpreting the results of this dissertation.

7.4 Relevance

We have developed the New International Structural Stages Model which is an illustration over structural evolution. The model can be used to view both the organization's present structure and on which path it is traveling. However, the model does not describe how the structural change shall be done. It is a process model of how structures develop, but it does not regard the actual process of change. All multinational organizations could gain from using our model as a framework of which structure they would benefit from.

7.5 Self criticism

The purpose of this dissertation was to find out whether it is possible to develop the International Structural Stages Model. We managed with this. A new dimension, the Information-Processing-Need –dimension was added to the model.

We have mainly used the following authors: Stopford and Wells, Bartlett and Ghoshal and Davis and Lawrence. It is possibly that there are others whose works could have contributed with knowledge that is not considered in this dissertation.

During this process we have learned the importance of focusing on a goal, and that it should be a clear goal. If the goal is clear, so is the path to reach it.

The learning process has thrown some punches on us. We have realized the importance of reviewing all the facts before starting a project. If all the factors are not taken into consideration, then your fall will become harder when you realize the mistake.

7.6 Further research

It would be interesting to do a case study where organizations were tested and compared with our model. In order to see if reality fits our model as we presume it would. The results could be plotted in to our three dimensional model to show their actual path and compare it to our theoretical path.

Could a model of how to change a structure be developed? We have concluded that the cultural dimension probably would be one of the affecting dimensions for this but what other factor would be important?

If a model of how to change a structure could be developed, could it be implemented with the New International Structural Stages Model? The result would be a model showing everything from which structure the organization has, to which they should have and how to reach it. The model would, if possible to do, be of great interest for all who are even remotely interested in an organizations structure.

References

Books

- Argyris, C. (1999). *On organizational learning*. Blackwell Publishers.
- Aronsson, Å. (1994). *SPSS för Windows - En introduktion*. Lund: Studentlitteratur.
- Bakka, J.F., Fivelsdal, E., Lindkvist, L. (2001). *Organisationsteori*. Daleke Grafiska AB.
- Bartlett, C.A., & Ghoshal, S (1990) *Transnational management*, Boston Irvin McGraw-Hill
- Bartlett, C.A., & Ghoshal, S. (1992). *Transnational management*. (2nd ed.). Boston. Irwin McGraw-Hill.
- Bartlett, C.A., & Ghoshal, S. (2000). *Transnational management*. (3rd ed.). Boston: Irwin McGraw-Hill.
- Davis, S.M., & Lawrence P.R. (1977). *Matrix*. Addison-Wesley Publishing Company.
- Edlund, P.O. (1995). *SPSS för Window s -Multipel regressionsanalys*. Lund: Studentlitteratur
- Fagerfjäll, R. (2005) *Sveriges Näringsliv*, SNS Förlag.
- Franko, L.F. (1976) *The organization of multinational manufacturing, The European multinationals a renewed challenge to American and British Big Business*, London, Harper and Row
- Galbraith, J.R. (1994). *Competing with flexible lateral organizations*. Addison-Wesley Publishing Company.
- Galbraith, J.R. (2002). *Designing organizations*. Jossey-Bass.
- Galbraith, J.R. (2000). *Designing the global corporation*. Jossey-Bass.
- Hill, C.W.L. (2005). *International business: Competing in the global marketplace*. Boston, Mass: McGraw-Hill.
- Hodge, B.J., Anthony, W.P., & Gales, L.M. (2003). *Organization theory*. Upper Saddle River, N.J: Prentice-Hall.
- Johnson, G. & Scholes, K. (2002). *Exploring corporate strategy*. Harlow: Financial Times Prentice-Hall.

- Kolodny, H.F. (1976). *Matrix organization design, implementation and management*. University Microfilms International.
- Knight, K. (1977). *Matrix Management – A Cross-functional Approach to Organizations*. Biddles Ltd, Guildford, Surrey.
- Mintzberg, H. (1993). *Structure in fives: Designing effective organizations*. Prentice-Hall.
- Mintzberg, H. (1979). *The structuring of organizations*. Prentice-Hall International Editions.
- Saunders, M, Lewis. P, & Thornhill, A. (2007), *Research Methods for Business Students* (4th ed.), Essex, Pearson Education Limited.
- Stopford, J. M. & Wells, L. T. (1972), *Managing the multinational enterprise e- Organization of the firm and ownership of the subsidiaries*, London, Basic Books.

Articles

- Baber, W.F & Bartlett R.V, (1990), Matrix organization theory and environmental impact assessment. *Social Science Journal*. Vol. 27, Issue 3, pp 235-245.
- Bartlett, C.A, & Ghoshal, S. (1990), Matrix Management: Not a Structure, a Frame of Mind. *Harvard Business Review*. pp 2-10.
- Ford, R.C. & Randolph W.A, (1992), Cross-Functional Structures: A Review and Integration of Matrix Organization and Project Management. *Journal of Management*. Vol.18. Nr 2, pp 267-294.
- Knight, K. (1976). Matrix organization: A Review. *The Journal of Management Studies*.
- Numerof, R & Abrams M. (2002), Matrix management: recipe for chaos? *Directors & Boards*.
- Pihl, H. (2003), On the idealized institutional evolution of organizational forms. Kristianstad University College. *Department of Business studies*. Working Paper Series 2003:8.
- Pihl, H. (2005), The MNE as a Coordinative Spider in a Global Web - The Economic Theory of the MNE Reconsidered. *Paper presented at the 31st European International Business Association (EIBA) conference, Oslo*.

Reese, W.D., & Porter. C. (2004) Matrix Structures and the training implications. *Industrial and Commercial training*. Vol. 36. Nr 5, pp 189-193.

Taylor, W (1991), The Logic of Global Business: An interview with ABB's Percy Barnevik. *Harvard Business Review*. pp 91-105.

Appendix 1

Följande frågor handlar om er organisation. Alla svar kommer att behandlas konfidentiellt.

1) Har er organisation en matris struktur som övergripande organisations struktur?

Ja *Gå till fråga 3* Nej

2) Har er organisation tidigare haft en matris struktur som övergripande organisations struktur?

Ja Nej

3) Vilket av följande påstående känner ni passar er organisation?

- Vi väljer en marknad som passar vår produkt
- Vi utvecklar en produkt som passar vår marknad
- Båda ovanstående
- Annat: _____

Dessa alternativ förklarades vid tillfället som:

Vi utvecklar en produkt som vi sen säljer på samtliga marknader.

Vi utvecklar olika produkter till olika marknader.

Båda ovanstående.

Om ingen av dessa passar hur skulle ni då beskriva att ni går tillväga med er produktutveckling?

På följande frågor önskar vi att ni graderar era svar på en skala från 1-10, där 1 är obefintligt och 10 är överväldigande.

4) Hur stort behov har ni av att bearbeta och sprida information mellan individer inom er organisation?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

5) Hur stort behov har ni av att kontinuerligt revidera era planer för framtiden?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

Förklaring: Om planerna för framtiden revideras en gång per år genererar detta svaret 5, mer sällan genererar lägre svar och oftare ett högre.

6) Hur stort behov har ni av att kontinuerligt anpassa er efter förändringar i omvärlden, med avseende på politiskt klimat och liknande externa faktorer?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

7) Hur stort behov har ni av att anpassa er organisation efter olika yrkeskategorier? Med detta avser vi exempelvis ekonomer och ingenjörer, att de talar i olika termer och har olika uppfattning om lösningar på givna problem.

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

8) Hur stort behov har ni av att anpassa er organisation efter olika länders kulturer?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

Tack för att ni tog er tiden att svara på våra frågor. Vi undrar om vi kan få återkomma om vi behöver komplettera vårt frågeformulär med ytterligare en fråga eller två.

Appendix 2

The following questions concern your organization. All of the answers will be treated confidential.

1) Does your organization have a matrix structure as an overall organizational structure?

Yes *continue with question 3*

No

2) Have your organization ever had a matrix structure as an overall organizational structure?

Yes

No

3) Which of the following statement fits your organization?

We choose a market that fits our product

We develop a product that fit our market

A mixture of both above

Other: _____

These alternatives were explained at the time as:

We develop a product that we then sell on all our markets.

We develop different products to different markets.

Both of the above mentioned.

If none of these fits then how would you describe your product development?

Now we would like you to grade the answers to the following questions on a scale from 1-10, where 1 is non-existent and 10 is overwhelmed.

4) How large is your need to process and spread the information amongst individuals in your organization?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

5) How large is your need of continuously revise company plans for the future?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

Explanation: If your plans for the future are revised once every year this renders the answer as 5, more rarely a lower grade and more often a higher grade.

6) How large is your need to continuously adjust the firm after changes in the surrounding environment, with regards of political climate and other similar external factors?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

7) How large is your need to adjust the organization after different work categories? With this we mean for an example economists and engineers, that they use different terms and have different opinions regarding solutions to a given problem.

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

8) How large is your need to adjust the organization after different countries cultures?

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

Thank you for taking the time to answer our questions. May we contact you again if we need to complement the questionnaire with a question or two?

Appendix 3

All the tests for statistical significance are presented here.

Hypothesis 1

Organizations that have stated a dual focus in question tree compared with the mean value for uncertainty, questions five and six.

Mann-Whitney U	2,500
Wilcoxon W	12,500
Z	-2,044
Asymp. Sig. (2-tailed)	0,041
Exact Sig. [2*(1-tailed Sig.)]	,038(a)

a. Not corrected for ties.

b. Grouping Variable: Structure

The difference between the structures is significant even if we do not consider the dual focus.

	VAR00005
Mann-Whitney U	14,000
Wilcoxon W	42,000
Z	-2,248
Asymp. Sig. (2-tailed)	0,025
Exact Sig. [2*(1-tailed Sig.)]	,027(a)

a. Not corrected for ties.

b. Grouping Variable: Structure

Hypothesis 2

There is a statistical significant difference between matrix and non-matrix structures. Questions four, five and six.

	Mean567
Mann-Whitney U	10,000
Wilcoxon W	38,000
Z	-2,607
Asymp. Sig. (2-tailed)	0,009
Exact Sig. [2*(1-tailed Sig.)]	,008(a)

a. Not corrected for ties.

b. Grouping Variable: Structure

Hypothesis 3

There is a not a statistical significant difference between matrix and non-matrix structures.

Question 7

	Fraga8
Mann-Whitney U	21,000
Wilcoxon W	49,000
Z	-1,614
Asymp. Sig. (2-tailed)	0,106
Exact Sig. [2*(1-tailed Sig.)]	,126(a)

a. Not corrected for ties.

b. Grouping Variable: Structure

Question 8

	Fraga9
Mann-Whitney U	24,500
Wilcoxon W	52,500
Z	-1,285
Asymp. Sig. (2-tailed)	0,199
Exact Sig. [2*(1-tailed Sig.)]	,211(a)

a. Not corrected for ties.

b. Grouping Variable: Structure

A mean value for questions seven and eight.

	VAR00004
Mann-Whitney U	19,500
Wilcoxon W	47,500
Z	-1,727
Asymp. Sig. (2-tailed)	0,084
Exact Sig. [2*(1-tailed Sig.)]	,085(a)

a. Not corrected for ties.

b. Grouping Variable: Structure