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Influences on effectiveness in Aker MH Operations

*Theoretical-empirical assessment of the Service and
Spare Parts departments*

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Executive summary

The degree of effectiveness in an organisation is affected by its design. Effective structuring is, however, not only a question of an internal consistency among the organisation's design parameters. In order to be effective, an organisation also needs a consistent structure that matches the situation in which it operates. Assessing organisational effectiveness thereby involves considering both structural and situational factors. The research question of this master thesis is concerned with how the contextual factors affect effectiveness in two after sales departments in Aker MH. To assess this, empirical data was collected through semi structured research interviews and then evaluated on the basis of a theoretical framework founded in organisational theory. The theories used help classify the contextual factors and present optimal structural solutions. The results and interpretations of the data for this thesis indicate that the after sales departments in Aker MH is following an ambidextrous approach and that this has an overall positive impact on effectiveness. Both empiricism and theory do, however, suggest that effectiveness in the after sales departments in Aker MH is lower than what can be achieved. The degree of effectiveness further seems to vary between the departments and departmental effectiveness further appears to be measured by different variables.

The evaluation of the factors and their influence, and the current fit is followed by some suggestions of possible actions that Aker MH could implement to increase the structural and contextual fit, and thereby possibly increase their effectiveness.

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Preface

This master thesis is the final project of a master's degree in economics and administration at the University of Stavanger. The project was initiated by Aker MH the autumn of 2007 and commenced January 2008.

The basis of the thesis was a set of organisational challenges experienced as the Operations division in Aker MH expanded their workforces in accordance with increased demand. The opportunity to study the impact of organisational aspects on effectiveness in Aker MH was greatly welcomed and has proven to be an intriguing, yet challenging and demanding, journey. I have had the chance to test and improve my theoretical knowledge and broaden my horizon.

I wish to express my gratitude to all the people in Aker MH who generously shared their views and ideas about the company. A special thank is dedicated to Tommy Kalsnes for giving me this great opportunity. I also wish to declare my appreciation to my teaching supervisor Bjørge Timenes Laugen, who with skilful and steady hand has guided me through the process. Last, but not least, do I wish to thank Anne-Lene Festervoll and Jo-Inge Sandell for their assistance and support along the way.

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Marianne Beatrice Borch

1 Introduction

1.1 The topic and the aim of the thesis

This master thesis is a case study of two after sales departments in the drilling equipment supplier Aker MH. The two departments, the Spare Parts and the Service departments, face a set of challenges due to increasing demand and organisational growth, further complicated through being present at two separate company divisions. These challenges are interesting to evaluate in light of organisational theory, especially so when considering their impact on organisational effectiveness.

The aim of the thesis is to use empirical data and a relevant theoretical framework to evaluate the settings of both departments and highlight organisational and structural aspects that could be changed in order to optimise the business and increase their effectiveness.

The paramount research question is therefore:

How are organisational factors related to effectiveness in the after sales departments in Aker MH?

In order to be able to answer this question, emphasis has been put on assessing the two departments' current strategy and structure, distribution and integration of tasks, and decision making, evaluation processes and effectiveness. Mapping the industry in which they operate has also been vital in understanding the needs and processes of the company. A short introduction to the oil industry will therefore be given before the company itself is introduced.

1.2 An introduction to the current state of the oil industry

There is more trade in oil than in any other goods. Petroleum's worth as an energy source powering the vast majority of vehicles and as the base of many industrial chemicals makes it one of the world's most important commodities. Strong economic growth in nations like China and India has increased world demand, and the oil price has increased substantially in recent years (<http://www.regjeringen.no/>).

Projections for petroleum demand in the future indicate a further increase in world demand despite oil prices remaining high. Despite having reached what is considered peak oil, a high degree of production is estimated also in the future and previously uneconomical, unconventional resources will probably be made available (EIA, 2007) through technological inventions.

With sky high day rates, operational uptime becomes central. Suppliers of equipment and services to the oil industry are expected to rapidly deliver operational support and the customers are often prepared to pay large sums of money in order to keep the downtime low.

Focus on health, safety, and environment (HSE) has increased around the globe, and new governmental regulations have raised the acceptable standards of equipment and procedures in the industry. New technologies have, among with new procedures and routines, greatly increased the safety on many facilities and have further reduced the number and size of areas disturbed by drilling (EIA, 1999). The degree of stringency does, however, vary considerably from nation to nation.

1.3 An introduction to the case

Aker MH is a Norwegian supplier of drilling equipment and systems. They have gained considerable market share during the last couple of years, especially so in the growing and demanding deepwater drilling market (AKMH, 2007b). The head office is located in Kristiansand, Norway, with regional offices and subsidiaries all over the world (AKMH, 2007a).

The two departments considered in this thesis belong to the Operations division, which constitute the after sales services in Aker MH. The two departments have, as Aker MH in general, experienced a huge expansion of demand for their products and services the last couple of years, and have greatly expanded their work force to meet this demand. Both departments were originally only situated at the head office in Kristiansand, but their work is now supported by a subdivision in Stavanger.

The case is described in more detail in chapter 2, 'The case: Aker MH', and in chapter 6, 'Results'.

1.4 Theory considered relevant

Several topics and theoretical perspectives within the discipline of organisational theory are relevant in appraising the research question. Both the internal and external context will in the following be described, researched, and discussed based on a set of generally accepted theories. The works of theoreticians like Porter, Miles and Snow, Woodward, Perrow, Thompson, and many more are considered in the search of creating a suitable theoretical framework. Three books can nevertheless be accentuated as the main theoretical sources; *Structures in Fives: Designing Effective Organisations* by Henry Mintzberg (1983), *Understanding the Theory and Design of Organizations* by Richard L. Daft (2007), and *Organizational Theory* by Gareth R. Jones (1998).

1.5 The value and background of the study

This thesis was initiated by Aker MH due to experienced difficulties within and between the growing departments in its Operations division. They wanted a second opinion of the situation and a discussion of the settings along with possible suggestions based on a theoretical approach. The hope is to broaden their view of the organisation through a coupling of theory and empiricism.

1.6 The scope and limitations of the study

The scope of the thesis has been developed in cooperation with key contacts at Aker MH, and the study is concerned with their organisational settings and structural and contextual dimensions. The thesis is limited to two of the departments in one of the divisions in one company in the oil industry. The evaluation of the current situation and the suggestions made are based in and limited to organisation theory, and other disciplines like economics, psychology, and law have not been included.

No similar project has earlier been done for the company. The understanding of the case has therefore basically been gained through interviewing the participants. Due to the scope of this research, several areas have not been investigated and limited the knowledge of the candidate. In order to get a complete understanding of the complexity of the case company, those areas should be considered.

1.7 The disposition of the thesis

The reader of this thesis will in the following find and description of the case, the Aker MH Operations, and theory considered relevant in positioning and analysing the situation

at hand. These two chapters lead to a thorough look at the research questions of the project, connecting theory and empiricism. The research methodology used is then described in detail before findings of the research and interpretations of these are presented. Following are sections with conclusions and suggestions to meet the challenges that Aker MH Operations faces today. The interview guide and other material can be found as appendices.

2 Aker MH

Aker MH is a fully owned subsidiary of Aker Solutions ASA, a leading global provider of engineering and construction services, technology products, and integrated solutions. The company belongs to the business area “Products and Technologies” within the Aker Solutions corporation and focus is on high end solutions and deepwater drilling equipment. The company was established in 1971 and Aker MH equipment is currently installed on close to 300 rigs world wide (AKMH, 2007a).

The head office is located in Kristiansand, Norway, and several regional support centres are, like their customers, situated all over the world (AKMH, 2007b). National Oilwell Varco is the only company considered a competitor but is in return dramatically larger than Aker MH.

2.1 The Operations division

Aker MH consists of several departments concerned with areas such as engineering, procurement, fabrication, and operational support (AKMH, 2007a). The Operations division, which is the focus of this thesis, provides the services required to ensure the lifecycle performance and a safe operation of the Aker MH drilling equipment. Their main activities are therefore after sales services, delivery of replacement parts, and overhauling, repairing and upgrading of equipment (AKMH, 2007b).

The Operations division has regional support centres situated on several locations and one of these support centres is a subdivision located in Stavanger, Norway. Two of the after sales departments, the Spare Parts and the Service departments, can be found here, as shown in the organisational chart in exhibit 2.1.

2.2 The Spare Part and Service departments

The Spare Parts department supplies parts for already sold Aker MH equipment. The equipment is built to last between 10 to 20 years, but repairs and updates after the warrantee period are frequently needed. This, alongside the fact that Aker MH equipment usually requires Aker MH parts, implies that each sale made by other Aker MH divisions, secures commissions for the Spare Parts section for many years to come.

The main spare parts inventory is found at the head office in Kristiansand and is supported by several regional spare parts inventories all over the world, including one in Stavanger (AKMH, 2007b).

The Service section in Aker MH provides technical and operational support to customers of the Aker MH equipment, involving going on ships, rigs, and platforms. As is the case with the Spare Parts section, Service is secured demand for many years with each sale of Aker MH equipment, as Aker MH service engineers are needed to repair and overhaul Aker MH equipment.

The many service engineers at the different offices are considered to be a collective pool and will be assigned tasks according to their skills and availability. The latter is a challenge not only due to their work rotation (five weeks on and three weeks off) but also due to governmental regulations limiting the legitimate offshore period, and, for the Norwegian continental shelf; a proceeding period on land of one third of the time spent offshore.

The service engineers are often assigned to projects where they, among other things, help commission new rigs for Aker MH customers. These projects are highly profitable and the company has seen a dramatic increase in the number of contracts the last couple of years. This increase in commissioning new rigs implies an increase in people leaving the pool of service engineers prepared to handle ad hoc tasks called in by customers. The strain on the remaining group of people to do ad hoc tasks is further enhanced by the fact that the more expertise an engineer has, the more attractive he or she is for project work. The less experienced engineers are therefore left to deal with often complicated ad hoc tasks.

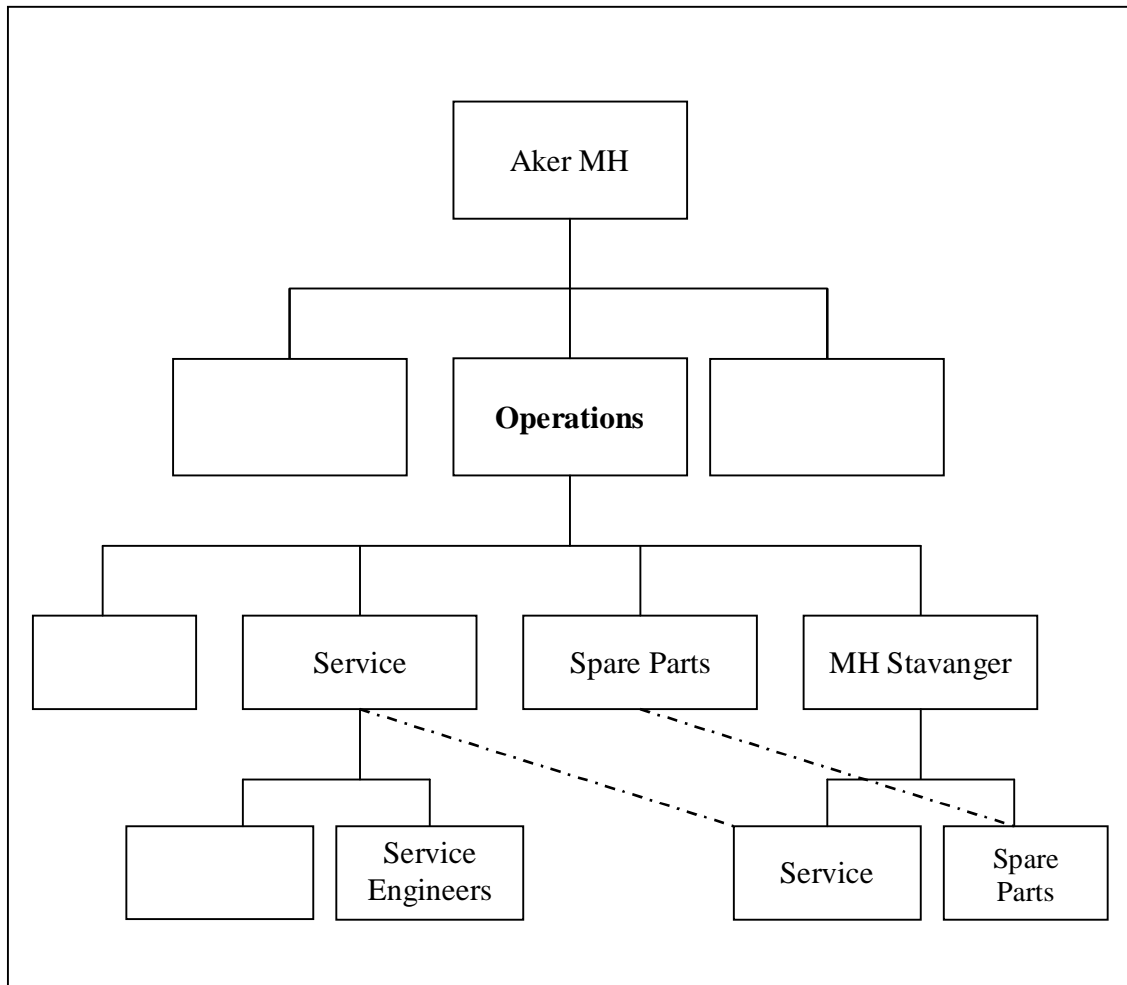


Exhibit 2.1 The organisational chart of Aker MH

2.3 The Stavanger division

During the last couple of years, Aker MH has experienced a considerable growth in demand, and thereby in deliveries, of their drilling equipment. Accordingly, new service departments have been opened and existing ones been expanded to cope with the increasing demand of operational support (AKMH, 2007b). One such expansion of the service offered was the establishment of a small Spare Parts division in Stavanger, Norway, in 1991. The location was chosen due to its close proximity to many of the

North Sea customers, as closer customer contact was seen as an advantage and a necessity to ensure attractiveness.

The division originally functioned as a spare parts supply centre for close to all spare parts needs of Aker Solutions' customers in the North Sea. The function changed in the year 2000 in accordance with growing demand into supplying only spare parts of the Aker MH equipment. Six years after this transformation, the division started a rapid expansion of its staff, mainly due to adding a Service entity, and increased the number of employees from five to 25 in two years.

The Stavanger division differs from the headquarters in several ways. The Stavanger office is noteworthy smaller both in size and amount of departments, and the structure and culture differ. Stavanger is nevertheless a subdivision of the head office; the managers of the Service and Spare Parts department in Stavanger are subordinate to those in Kristiansand, and the division's cost and profit centres are shared. This subdivisional solution presents both advantages and challenges to both divisions.

2.4 Projections for the future

For Aker MH the last years have shown favourably development in all target segments, and the market for drilling equipment and systems experiences high activity. The forecast as of 2008 has been characterised as good as well; an increasing number of drilling rigs and floating production units are entering the market, and high energy prices and market activity levels are expected to continue, extending the life of several projects in their "tail-end" production phase (AkerKvaerner, 2008). Aker MH has been awarded significant and important technology development contracts with some of its key clients (AKMH, 2007b), securing business for the Operations divisions for years to come. The boost of the after sales service demand is expected to increase the service and after-sales share of the operating revenues, further advancing their importance (AkerKvaerner, 2008).

2.5 Summary

The after sales services of the Spare Parts and Service departments constitute an essential part of Aker MH's provided offer. The increased demand for the equipment calls for further development and strengthening of these departments to meet the after sales and operational support required. Organisational growth is, however, typically a challenging and tricky process, causing strain on organisational effectiveness. Precisely these matters shape the focus of this thesis, generating a research question concerned with the structural and contextual settings of the company.

3 Theory

This chapter introduces the theories considered to be relevant in examining the topic and the research questions of the thesis. The theories belong to the discipline “organisational theory” and form the theoretical framework in which the findings from the research are to be interpreted and discussed in later sections.

There is much agreement in the literature on the topics discussed in this chapter, and in the following the will find a set of generally accepted theories concerning the organizations it self, the context in which it operates, and the achievement of effectiveness.

3.1 Organisational effectiveness

In addressing the effectiveness issue of an organisation, it helps to clarify what it implies to be effective. Daft (2007) describes the term “effectiveness” as a broad concept evaluating the extent to which an organisation attain multiple goals. How an organisation is structured heavily influences the degree to which these goals are achieved, making structure a focal point in any effectiveness assessment. This is related to the fact that organisations only to some degree, if at all, can affect the situation in which they find themselves. The structure, however, can be adjusted to better suit the surroundings and thereby increase the organisation’s effectiveness. An effective organisation is thereby one that designs its organisational structure so that it can gain competitive advantage and survive (Jones, 1998).

Related to the effectiveness term is the notion of efficiency. “Efficiency” is a more limited concept than effectiveness, and pertains to the amount of resources used to produce inputs into outputs (Daft, 2007). Efficiency may lead to effectiveness, but they

are not necessarily interrelated; an organisation can reach its goal without being efficient while another organisation might be highly efficient but still fail to reach its goals by efficiently producing goods for which there is no demand (Daft, 2007). Efficiency in itself is clearly not enough.

3.1.1 Measuring effectiveness

Managers measure different indicators in order to evaluate effectiveness. Traditionally quantitative indicators have been preferred over those that are not, but an increasing number of ways to measure “soft” indicators, like employee satisfaction, are developed and used (Daft, 2007). Even though overall effectiveness is difficult to measure, an organisation can be characterised as effective if it can secure scarce and valued resources and skills from outside the organisation, coordinate resources to innovate and adapt to changing customers needs, and efficiently convert skills and resources into goods and services (Jones, 1998).

The parts of an organisation that are subject to effectiveness evaluation typically vary according to contextual settings. Whereas Jones (1998) stress that managers must be careful to develop goals that measure the effectiveness of the receiving of inputs from the environment, the internal activities and processes of the organisation, and the delivery of products and services to the environment, Daft (2007) claims that managers tend to consider which area is the most important for the organisation to measure, and concentrate on that area.

Exhibit 3.1 shows a set of so called contingency approaches that are linked to each area subject to effectiveness measurement. What is fascinating is not only that each of these approaches have different suitability and limitations but also the fact that they have different ways of assessing effectiveness (Daft, 2007).

The resources-based approach looks at the input side of the transformation process and evaluates the degree of effectively obtaining the resources needed for high performance. Indicators of effectiveness are bargaining position - the ability to obtain scarce and

valued resources, to be able to use tangible and intangible resources to achieve superior performance, the ability to correctly interpret the real properties of the environment, and the ability to respond to changes in the environment. This approach is useful when other performance indicators are difficult to measure but it does have some shortcomings; a superior ability to acquire and use resources is valuable only if they are used to produce something that is actually demanded in the environment (Daft, 2007).

A second approach assesses effectiveness by measuring the organisation's internal health and efficiency. Indicators of an effective organisation are here a strong corporate culture and positive work climate, team spirit, confidence and trust, vertical and horizontal communication, decision making near the sources of information, reward systems for performance and development of subordinates, and interaction between the organisation and its parts. The internal process approach is valuable as effectiveness can be measured by the efficient use of resources and the organisation's internal functioning. Today, treating employees well is considered by many to be a key factor in accomplish success as it is part of achieving the necessary smoothness in internal processes. However, here too, weaknesses are found; the approach does not consider the external environment, failing to assess total output and the organisation's relationship with the environment.

A third approach, the goal approach, is focused on identifying an organisation's output goals and assessing the degree of goal attainment. The indicators of effectiveness should here be the operative goals rather than the official goals, as effectiveness measures of the former have shown to be more productive. Difficulties do, however, often arise in identifying the operative goals and in measuring the actual performance of the organisation. One indicator alone can seldom assess all the goals as they are often many in numbers and may even be conflicting, High achievement of one goal may thereby imply low achievement of another. Further does the nature of the goals call for different assessment methods; quantitative goals can be assessed by objective indicators while qualitative goals such as social responsibility, need subjective assessment. By this, not only finding the actual operational goals poses a challenge, so does the gathering of information (Daft, 2007)

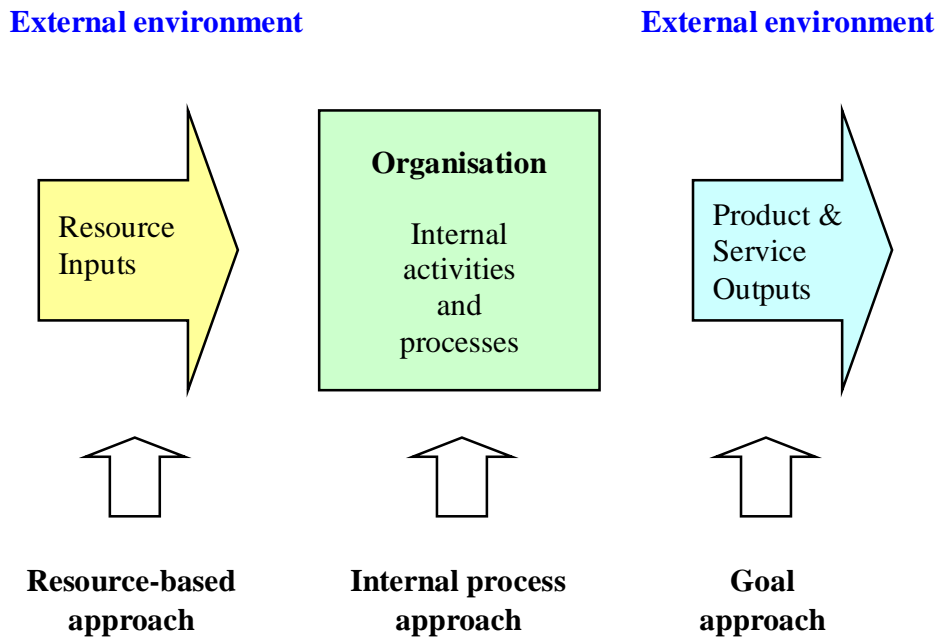


Exhibit 3.1 Approaches to the measurements of organisational effectiveness
 Source: *Understanding the Theory and Design of Organizations* by Daft, pp. 171

3.1.2 An integrated effectiveness model

The approaches to measure effectiveness described in the former section are weakened by the fact that they do not take into consideration all the different parts of the organisation. The different indicators of effectiveness are seen in separation instead of as a whole of many activities with many outcomes. A model that tries to do combine the different indicators into a single framework is the Competing values model developed by Quinn and Rorbaugh (1983). This model acknowledges that there are competing viewpoints about what constitutes effectiveness and that managers sometimes disagree on which goals are to be pursued on the cost of others. The performance indicators are placed in different value dimensions based on the competing values in organisations. The dimensions form a two-by-two model with the axis “focus” and “structure”. When it comes to focus, an organisation is placed according to its degree of internal vs. external focus, i.e. according to the importance placed on well-being and efficiency of employees

vs. the well-being of the organisation itself. The other axis, structure, has the two poles “control” and “flexibility”, and organisations are placed according to their dominant structural consideration. “Control” reflects a top-down efficiency value whereas “flexibility” represents valuation of learning and change (Daft, 2007).

The four categories created by these dimensions are linked to dissimilar approaches to organisational effectiveness and represent opposing organisational values. The human relations emphasis represents the values of an internal focus and a flexible structure. The primary goal is to develop human resources whereas the sub goals are cohesion, moral, and training. The open system emphasis combines an external focus with a flexible structure, and reaches for growth and resource acquisition. Sub goals are here such as flexibility, readiness, and external evaluation. The internal process emphasis incorporates internal focus and a control, with main goals being stability and equilibrium. Other goals may be information management and communication. The last emphasis is called the rational goal emphasis, based on an external focus and structural control, aspiring to productivity, efficiency, and profit. The sub goals of this emphasis are such as planning and goal setting.

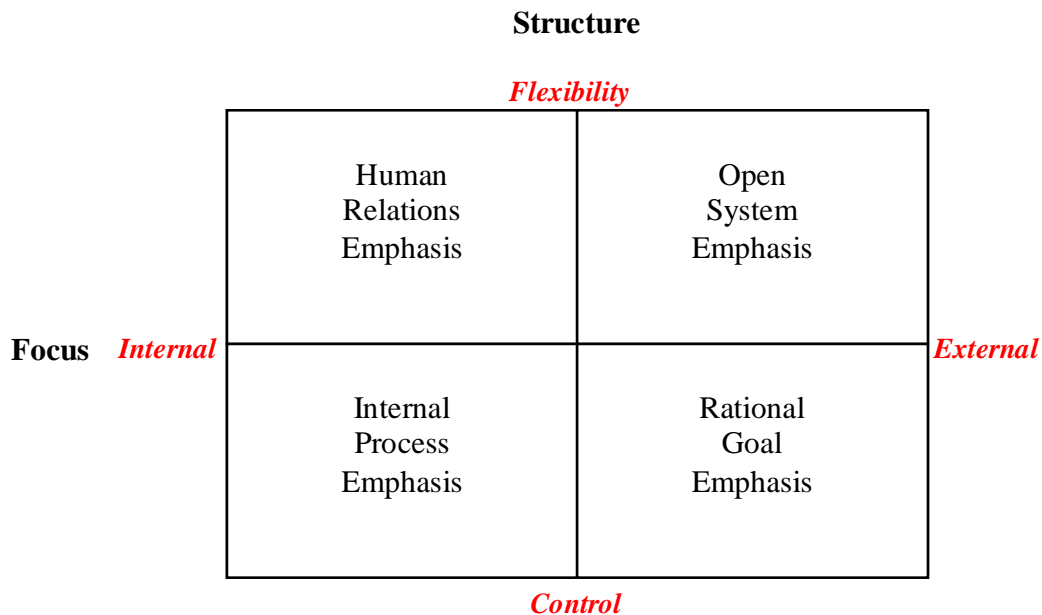


Exhibit 3.2 An integrated effectiveness model
 Source: *Understanding the Theory and Design of Organizations* by Daft, page 176.

Organisations are mapped by being placed on to the categories according to how much the appurtenant emphasis is to the organisation, opening up for including multiple emphases in accordance to the actual set of values in the organisation in question. Most organisations will thereby cover two or more dimensions, yet probably take up more space in one or two than in the others (Daft, 2007).

The competing values model is useful as it makes two contributions: it shows how opposing values of an organisation exist at the same time as well as it creates a single framework in where diverse concepts of effectiveness are integrated. The four dimensions are stated as existing simultaneously, but with varying priority to different firms at different times. The model thereby also opens for evaluating the changes in the organisations' values over time (Daft, 2007).

3.2 Factors affecting organisational effectiveness

Understanding the concept of fitting design to various contingency factors can be a first step towards understanding organisational effectiveness. An organisation's goal, or purpose, greatly shapes how an organisation is designed and managed, but is only one of several factors that influence organisational characteristics. In addition to assessing the organisational strategy, contingency factors like environment, size and life cycle, technology, and culture all need to be considered in order to design an effective organisation (Daft, 2007). The following sections are therefore dedicated to explaining these factors.

3.2.1 Structure

Mintzberg (1983) suggest that organisations consist of five basic parts; the operating core, the middle and top management, technostructure, and support staff (depicted in exhibit 3.1). At the base of the organisation is the operating core, those employees that

perform the basic work of production. The other parts are called for as the organisation grows, and need increased supervision and support. The size and the importance of these parts will thereby vary from one organisation to another. The differences in the parts are further expressed through forces. Each part has its own force which pulls the part in a certain direction, and the structure of the organisation is influenced by which of the forces are the most dominant.

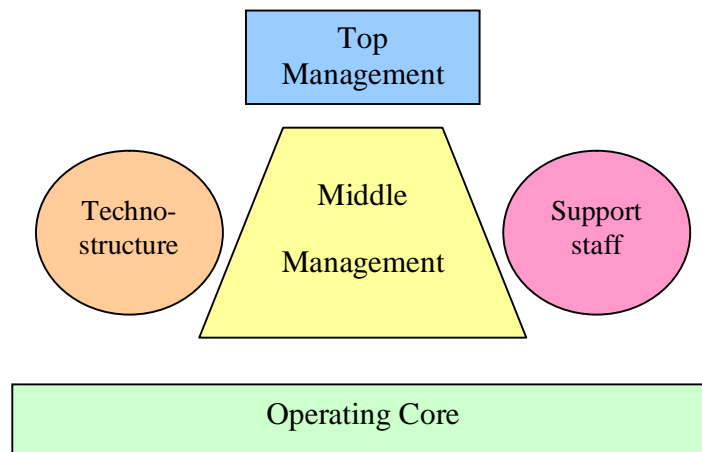


Exhibit 3.3 The basic parts of an organisation.
 Source: *Structures in fives* by Mintzberg, page 11.

Structure, Mintzberg (1979) claims, can be defined as the total of the ways in which the labour in the organisation is divided into distinct tasks and then coordinated. Coordination can be reached in several ways. It can for example be achieved through mutual adjustment or direct supervision. Mutual adjustment implies interaction between all the people in a group, whereas direct supervision means a leader is coordinating the activities by giving orders to others. Coordination can also be achieved by several forms of standardisation. Work processes, outputs, skills, and norms can all be standardised by different means, coordinating by predetermining what people in the organisation will do.

The coordinating mechanisms can be seen as the glue that holds organisations together, yet the essence of organisational design is the manipulation of a set of parameters that determine the division of labour and the coordination. These internal characteristics of an organisation are often called ‘structural dimensions’.

A structural dimension familiar to most is the ‘hierarchy of authority’. The formal hierarchy of an organisation describes who reports to whom and can in this sense be useful in understanding how the company works. The hierarchy of authority is related to the ‘span of control’, - the number of employees reporting to a supervisor, as hierarchy tends to be tall when spans of control are narrow, and vice versa (Daft, 2007).

Connected to the latter is ‘centralisation’, a dimension that refers to which hierarchical level has authority to make decisions. A centralised organisation is one that keeps decision making at the top level, whereas broadening the delegation of decisions to include lower levels imply a decentralised organisation (Daft, 2007). We can further distinguish between two types of decentralisation; vertical decentralisation, which delegates formal power to line managers throughout the hierarchy, and horizontal decentralisation, that disperse informal power to non-managers out of the line of hierarchy (Mintzberg, 1979).

The ‘personnel ratios’ refer to the amount of employees in the various functions and departments (Daft, 2007). Small units do not necessarily imply close supervisory control, and vice versa. Experts coordinating their work by mutual adjustment, will prefer smaller units, whereas highly standardised work which needs little direct supervision, can be performed in units of great size (Mintzberg, 1979).

Another structural dimension is the degree of ‘formalisation’, which describes how much of the communication in the organisation is done in writing. This documentation describes behaviour and activities (Daft, 2007) and is often used to standardise operations (Jones, 1998).

An organisation’s degree of ‘specialisation’ concerns the extent of subdivision of tasks into separate jobs, therefore also often referred to as ‘the division of labour’. Low specialisation means the employees perform a wide set of tasks in doing their jobs, whereas high specialisation implies a more narrow range of tasks (Daft, 2007).

How much education and training is needed in doing these tasks, determines the degree of 'professionalism' in the organisation. Professionalism is considered high when employees require long periods of training to perform their work (Daft, 2007). Training introduces standardisation in form of skills and is, together with formalisation, which standardises through imposed rules, a substitute for achieving standardisation of behaviour. The latter is a standardisation that affects the work processes by imposing operating instructions, job descriptions, rules and regulations (Mintzberg, 1979).

Structure can also be considered according to how the organisational units are grouped. Grouping encourages coordination by gathering jobs under common supervision, through creating a sharing of available resources and measures of performance. The two most common approaches are functional grouping, which groups according to the function performed, and divisional grouping, which groups according to the market served (Mintzberg, 1979).

The former description of the many structural characteristics accentuates that structural design is the result of a combination of a whole set of factors. Some combinations are more common and can be said to bundle more naturally than others. There is general agreement amongst theoreticians in the field of organisational theory that structural design greatly affects effectiveness and that different organisational structures cause people to behave differently. Designing and adapting to an appropriate structure should therefore be a main concern for managers. The act of designing "the appropriate organisational structure" is, however, not only about fitting structural characteristics together, it is also about choosing a combination that fits well to a whole set of other contextual factors.

3.2.2 Strategy

One of these factors affecting organisational design is strategy. Goals are said to define where the organisation wants to go while the strategy defines how to get there. A strategy is in this sense a plan for interacting with the environment to achieve the goals of the

organisation. In evaluating structure, we should therefore also evaluate the organisation's goals and strategy and consider the fit between the two (Daft, 2007).

Two well known models for strategy formulation linking strategy and organisational design are Porter's Competitive Strategies, and Miles and Snow's Strategy Typology. Porter (1980) divides effective strategies into groups according to whether managers determine to compete narrowly or broadly through lower costs or through offering distinctive products or services that can command a higher price. He stresses that the different strategies demand certain organisational designs in order to be successful, and that companies that chooses to stay anywhere in between the poles are doomed to fail.

Miles and Snow's typology from 1978 involve a greater number of strategies characterised as possibly effective. They concluded that strategies can be divided into three suitable positions; prospector strategies, which seeks to innovate and act on new opportunities, defender strategies, which is concerned with stability and internal efficiency and control, analyser strategies, which tries to combine the former two. They also suggest a reactor type, which involves not really having a strategy at all. The lack of strategy often cause the organisation to fail to respond to market demands, and is thus not an effective strategic position (R. E. Miles & Snow, 1978).

Miles and Snow contrast Porter by opening for a middle course, where the organisation focuses on both innovation and efficiency. They do, however, support Porter in stressing that the different strategies require different organisational characteristics in order to be successful.

3.2.3 Environment

A second factor that needs to be considered in order to achieve effectiveness is the environment in which an organisation operates. To better understand how an organisation is related to its environment, it can be viewed as an open system. An organisational system involves a set of interacting elements, i.e. people and departments depending on and working with each other. An open system means that these interacting elements

transform inputs obtained from the environment into outputs that are later released back into the environment, as illustrated in exhibit 3.2. The inputs used in the transformation process are of many kinds, and includes materials, people, and finances.

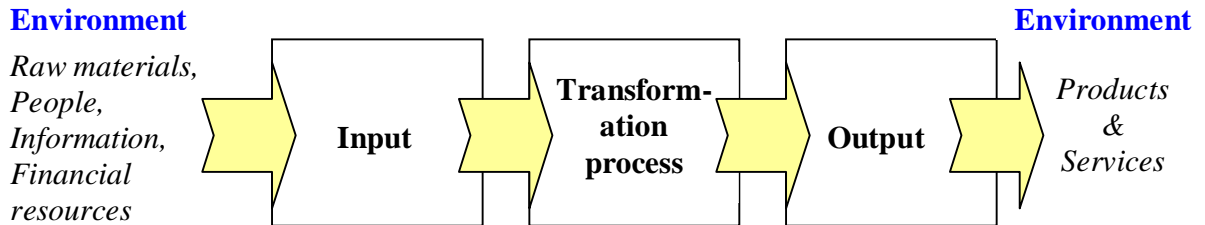


Exhibit 3.4 Organisations as open systems

Source: Daft’s *Understanding the Theory and Design of Organizations*, page 15.

The organisational environment can be seen as a set of forces surrounding the organisation that have a potential impact on its operations and access to scarce resources. An organisation’s environment includes not only economic, social, and political factors but also the sources from which the organisation obtains its inputs and the marketplace in which it releases its outputs (Jones, 1998). The dependency on the environment depicted in the open systems theory forces an organisation to adapt to its environment in order to survive (Daft, 2007). If the environmental elements change, so must the organisation.

The environment influences an organisation through opportunities and threats in which to act upon, but the effect of the external elements varies between nations, industries, even firms. The amount of elements the organisation has to deal with, the speed of change in these elements and so forth is often described in terms of degree of uncertainty. High environmental uncertainty involves insufficient information about the external factors on which to base decisions and is thereby directly related to the risk of activating unsuccessful organisational responses to environmental change (Daft, 2007).

Daft (2007) evaluates environmental uncertainty along the dimensions simple-complex and stable-dynamic. The simple-complex dimension is concerned with the amount and heterogeneity of external elements relevant to an organisation, whereas the stable-

unstable dimension refers to the degree of change the elements are subject to (Daft, 2007). When put in a two-by-two matrix (see exhibit 3.3), the dimensions depict four types of environments with varying degrees of uncertainty.

	Stable	Dynamic
Simple	Low uncertainty Small no. and similarity of external elements. Slow change, if any.	High-moderate uncertainty Small no. and similarity of external elements. Frequent and unpredictable change.
Complex	Low-moderate uncertainty Large no. and great dissimilarity of external elements. Slow change, if any.	High uncertainty Large no. and great dissimilarity of external elements. Frequent and unpredictable change.

Exhibit 3.5 Environmental uncertainty matrix

Source: *Understanding the Theory and Design of Organizations* by Daft, page 58

In addition to the two dimensions, Daft (2007) adds a third characteristic of the organisational environment that influences organisations, namely resource dependence, and is thereby supported by Jones, who uses a model that combines the two dimensions used in Daft’s models with a third; the richness dimension. Environmental richness is according to Jones (1993) the amount of resources available to the environmental domain in which the organisation operates. Rich environments have plenty of resources available and experience low environmental uncertainty regarding resource acquisition. His model describes the degree of uncertainty as affected by all three factors, complexity, dynamism, and richness, and the higher the degree of these factors, the greater the degree of uncertainty in the environment.

The former descriptions of the environmental dimensions show that the environment of one organisation can be quite different from that of another. What is interesting is that

organisations tend to structure themselves in order to fit their environment. An example of this is a study by Burns and Stalker showing that the external environment in which the effective organisation operates influences the organisation's internal system. On the basis of their study, Burns and Stalker depicted two opposing poles of organisational design; a mechanistic and an organic system. The mechanistic system is characterised by rules, formality, clear hierarchy of authority, high degree of centralisation, and decisions being made at the top. This system is typically found in stable environments (Burns & Stalker, 1961), where focus is on efficiency and effectiveness. An organic system, on the other hand, is looser and more adaptive, with characteristics such as decentralised authority, an informal approach to assigning tasks, and horizontal communication. These characteristics make the organisation better fitted to face the challenges of rapidly changing (unstable) environments, where learning and innovation are key factors for survival (Burns & Stalker, 1961).

Environmental domain can also be assessed according to its degree of attractiveness. Porter (1979) evaluates environmental attractiveness by the intensity of the rivalry between the industry competitors, the bargaining power of buyers and suppliers, and the threats of substitutes and new entrants. The collective strength of these forces can thereby be ranged from mild, where there is room for quite high returns on investment, to intense, where none of the companies earn spectacular returns.

3.2.4 Size and life cycle

Successful organisations are generally not static. They evolve and grow, and they need to cope with these changes. Research has shown that as organisations grow, they tend to follow a fairly predictable pattern of sequential stages. These stages are conceptualised as the organisation's life cycle, categorising the different phases from its "birth" to its "death". Four stages are dominant; the entrepreneurial stage, the collectivity stage, the formalisation stage, and the elaboration stage. After the latter, companies tend to either

focus on small-company thinking, continue their maturity, or decline (Daft, 2007). The stages and the appurtenant challenges, or crises, are depicted in exhibit 3.5.

Growth is not easy, and each new stage in the life cycle implies new problems and challenges as of how the organisations functions internally and how it is related to the external environment. Each stage is therefore characterised by their own set of organisational structure, leadership style, and administrative systems (Daft, 2007).

The first period after formation, the entrepreneurial stage, is characterised by emphasis on creation of product or service and survival. The organisations at this stage are typically informal and nonbureaucratic, with highly devoted founding entrepreneurs personally supervising the work done. As an organisation starts to grow, more people are hired, and the creative and technically oriented owners are confronted with management issues. The crisis of the entrepreneurial stage is therefore called “the need for leadership” (Daft, 2007).

If the need for leadership is successfully handled, the company enters the collectivity stage. This stage is characterised by development of clear goals and direction, and establishment of hierarchy of authority, job assignment, and beginning division of labour. The challenge here lies in creating mechanisms for controlling and coordinating the different departments without direct supervision from the top. The critical aspect of this stage is therefore the need for delegation with control (Daft, 2007).

The formalisation stage involves installation of rules, procedures and control systems. Issues such as strategy and planning become prominent and communication is less frequent and more formal. The number of staff often increases and decentralized units may be formed to improve coordination. The challenge is then the amount of red tape faced by the employees (Daft, 2007).

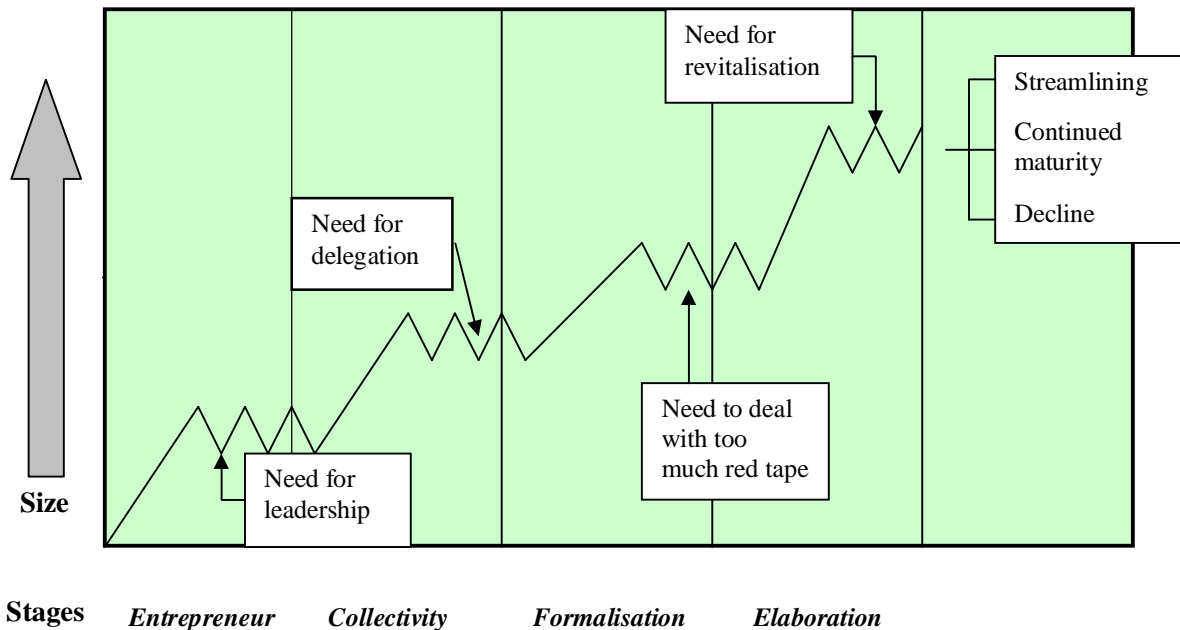


Exhibit 3.6 The life Cycle of Organisations

Source: Daft's *Understanding the Theory and Design of Organizations*, page 479. Adapted from Quinn and Cameron, "Organizational Life Cycles and Shifting Criteria of Effectiveness", 1983.

When mature organisations reach the elaboration stage, they often find them selves in a situation where they have shifted out of alignment with the environment, were responses are slow and the structure is over-bureaucratished. A need for revitalisation presents itself and must be addressed if the company is to survive (Daft, 2007).

3.2.5 Technology

When talking about an organisation's technology in organisational theory, one refers to the production process which includes both the work procedures and the instruments used by the operating core to transform inputs into outputs (Daft, 2007, Mintzberg 1983). The potential importance of technology as factor in organisational structure was discovered in the 1960s and the relationship has been the focus of several studies since then. To views of technology are considered relevant in this case, and are presented in the following.

Perrow's theoretical framework is based on considering technology as activities and focus on departments and the individual worker. He specifies two dimensions of departmental activities considered to be relevant to structure and process. The first is analysability, which refers to whether the activity can be divided into objective, mechanical steps. The more analysable a task, the more procedures have been constructed in advance and the more like a routine is the process. The other dimension is variety, which is the frequency of unexpected and new events occurring during the production process. When the number of exceptions is high, task variety is considered high (Perrow, 1967). Together these dimensions create a two-by-two matrix of four technology categories with varying complexity; craft, routine, non-routine, and engineering. As workflow technologies may vary from one department to the other and different technologies can be associated with different structural characteristics, Perrow (1967) stresses that managers should design their department in such a way that the technological requirements can be met.

The other view of technology was developed by Thompson in 1967. Thompson was also concerned with technology as activities but focused on task interdependence, - the way in which departments depend on each other for resources and materials. Three types of interdependencies that influence the organisation was identified; pooled, sequential, and reciprocal. Pooled interdependence exists when no work flows between the units of the organisation and is the lowest form of interdependence. Sequential interdependence implies an interdependence of a serial form, where parts produced in one department becomes input in another. Reciprocal interdependence is characterised by inseparable input, conversion, and output activities. Here too can the different technology characteristics be associated with different structural characteristics.

3.2.6 Culture

All organisations have a corporate culture, a set of values that form how employees behave and how tasks are carried out (Daft, 2007). It is shaped by the employees them

selves, by the ethics of the organisation, and by the type of structure used in the organisation (Jones, 1998). Organisational cultures serve as a critical function both as a guide for members on how to interact with each other and as a help in adapting to the external environment. Thus is culture related to forging relationships both within the organisation and with its outsiders. Culture further influences how the organisation responds to, and interprets, its environment, thereby affecting organisational performance (Daft, 2007). A strong culture can consequently have a profound impact on a company. On the one hand, culture can create a competitive advantage which is hard to imitate, but on the other it can create obstacles to innovation and the adaptations needed to succeed in dynamic markets (Tushman & O'Reilly III, 1996).

The culture is, however, not always uniform throughout an organisation. Subcultures develop in accordance with different problems, goals, and so forth, faced by different units, and can sometimes lead to conflicts between departments. This phenomenon is especially common in companies that have physically separated units. A company should therefore make effort to have a corporate culture that reinforces the strategy and structural design needed to be effective in the organisation's environment (Daft, 2007).

The many components of structural design and the many contingency factors that must be considered when making choices on organisational design have now been considered in some detail. The next step is to address how to manage these elements, how to create the fit that is stated as necessary in order to achieve organisational effectiveness.

3.3 Creating fit

The value of understanding the structural and contextual dimensions of organisations and their interdependence lies in the possibility to use this knowledge to design the organisation in such a way that it achieves high performance and effectiveness. By addressing several types of fit, and how these can be achieved, we might be one step

nearer effectiveness. Which structural solutions that may benefit the organisation will be addressed in the following.

3.3.1 Structural fit

Mintzberg (1979) says that “the essence of organisational design is the manipulation of a series of parameters that determine the division of labour and the achievement of coordination.” But how should the organisation designer combine the different aspects of structure?

3.3.1.1 Configurations and effectiveness

Mintzberg (1979) claims that the structure of an organisation is formed according to which of the five organisational parts are the more dominant. There are a great number of possible bundles of the design parameters, or ‘configurations’ as Mintzberg calls them, yet he suggest that a limited number of these configurations can explain most of the tendencies that drive effective organisations to structure themselves as they do. Mintzberg states that “*effective structuring requires an internal consistency among the design parameters*” (Mintzberg, 1983, page 122) and that successful organisations develop one of five logical configurations. These five configurations represent clusters of entrepreneurial organisations, machine organisations, professional organisations, diversified organisations, and innovative organisations; all distinct in their structural design, in the situations they are found, and their leading forces.

Organisational forces can, however, become too dominant, and prevent the organisation to adjust to external changes. The configurational form can thereby become ineffective and a hindrance in stead of a competitive advantage and the organisation will face a need to restructure. Mintzberg (1989) acknowledges this possibility, and concludes that in keeping configurations effective, the constraining effects of the other forces are as important as the dominance of a single force. Mintzberg (1989) persist that an organisation will benefit from being shaped like one of his configuration and that if a

form fits, the organisation should wear it. Yet, he states that no truly effective organisation will have a pure configurational form but will rather exist as an incomplete version of the form and move towards another configuration when the contextual factors require it.

3.3.1.2 Grouping

Which unit groupings are the better fitted for a company, relies on several interdependency criteria. For one, the workflow interdependencies, or linkages, must be considered. Process interdependencies relates to the same processes used in different workflows, e.g. maintenance on different machines. Scale interdependencies relate to economies of scale, where a group is formed to reach a size that makes it function effectively. Finally, social interdependencies represent not the work done but the relationships that accompany it (Mintzberg, 1983).

In considering the impact the interdependencies have on groupings, Mintzberg (1979) states that grouping by function is favoured by process and scale interdependencies. Grouping by function encourages for example specialisation, by allowing specialist to come together. Yet this type of grouping may narrow perspectives, enhancing a focus on means in stead of ends. This is why grouping by markets is used to favour coordination in the workflow. Market grouping enables the organisation to more easily change its tasks when demanded by the market and to accomplish a wider variety of tasks. On the other hand, favouring workflow coordination at the expense of process and scale specialisation reduces the ability to specialise and standardise tasks.

In larger organisations, however, it is not so much a question of which basis of grouping to choose, but which grouping to use on the different levels of the organisations (Mintzberg, 1979).

3.3.1.3 Ambidextrous Organisations

An ambidextrous organisation is an organisation that through dual dexterity embodies two contrasting elements such as mechanistic and organic structures. An ambidextrous organisational form can thereby create an environment in which both established and

emerging businesses prosper side by side, reconciling otherwise opposed agendas (Herber, Singh, & Useem, 2000). The organisational form is typically coupled to structural settings which incorporate processes that are appropriate both for creation and implementation of innovation (Daft, 2007), but the approach can constitute various combinations of opposing dexterities. An ambidextrous approach explained earlier is Miles and Snow's 'Analyser', which balances both efficiency and learning, tight cost control and flexibility (R. E. Miles, Snow, Meyer, & Coleman Jr., 1978). No matter the variant, the critical feature seems to be to limit the separation of the contrasting operations. Mutual stimulation can be achieved through lateral linkages promoting communication and sharing of knowledge (Herber et al., 2000).

3.3.2 Strategic fit

Organisational design that supports a company's competitive approach is said to be needed in order to achieve effectiveness, and Porter and Miles and Snow assigned sets of structural characteristics considered to fit their strategy categories. For example are both Porter's Differentiator and Miles and Snow's Prospector said to benefit from a learning orientation in flexible structures, whereas a Cost Leader or Defender should design its structure so that efficiency can be increased (Daft, 2007).

Michael Porter's 5 forces theory put emphasis on how an organisation's context influences the choice of strategy. He states that as the essence of strategy formulation is copying with competition, analysing the industry is crucial. Five forces define the posture of competition in an industry and the collective strength of these forces determines the market's profit potential, referred to as its 'attractiveness' (see exhibit 3.7).

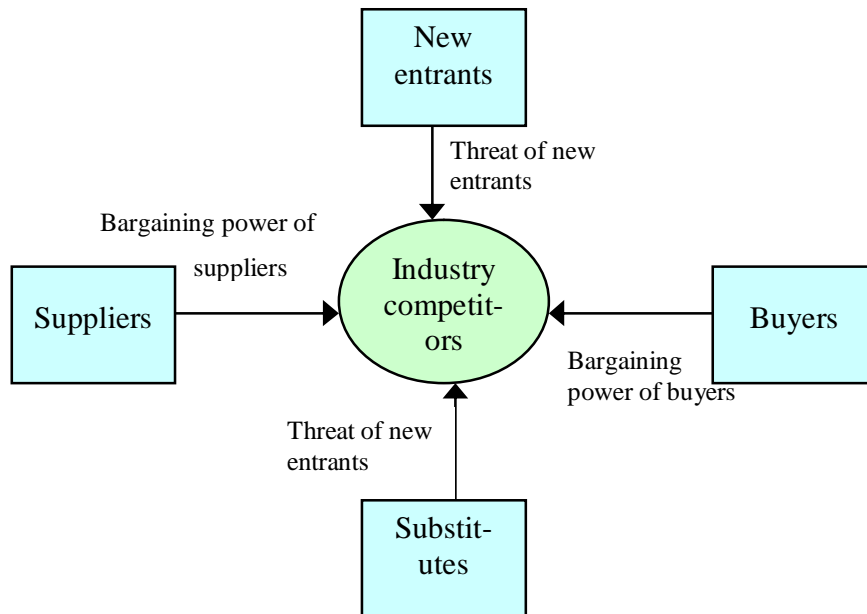


Exhibit 3.7 Porter’s “Elements of industry structure”.
 Source: *The Strategy Process* by Mintzberg et al, page 95.

Whatever the collective strength of these forces, the strategy must be formulated as to best position the company in order to defend it self against, or influence these forces. The key to growth, Porter claims, is to position the company where it is less vulnerable to attack from immediate opponents, whether established or new, and less vulnerable to erosion from buyers, suppliers, and substitute goods. Such a position can be achieved in many ways, ranging from establishing relationships with favourable customers, physically differentiating the product, to heavy marketing (Porter, 1979).

3.3.3 Environmental fit

As organisations are open system, organisational functioning and management uncertainty is heavily affected by the external environment in which they operate. Organisations strive to survive in settings characterised by varying degrees of uncertainty

and scarcity of resources. In fact, as most organisational decisions, activities, and outcomes can be traced back to stimuli in the environment (Daft, 2007), environmental comprehension is important to understand in assessing an organisation’s design and actions.

Organisations must cope with and correctly manage the degree uncertainty in order to be effective. A well functioning organisation in a certain environment is therefore likely to be designed and managed differently than a well functioning organisation in another. Several studies have indicated that organisations should adapt their structure to reflect the degree of uncertainty in the environment. A study by Burns and Stalker (1961) indicates that organisations in uncertain environments need an organic structure that facilitates adaptations and responses to the environmental change.

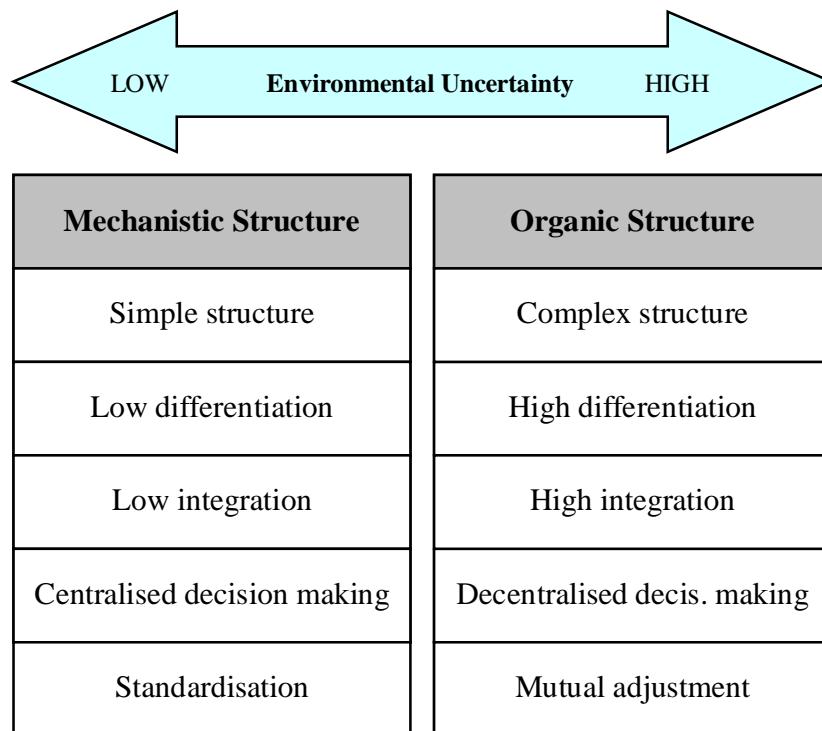


Exhibit 3.8 The relationship between environmental uncertainty and organisational structure
 Source: *Organizational Theory* by Jones, 1993

Organic structures are more effective when confronted with rapid change and the need for on-the-spot decisions as lower-level employees have the authority to make important decisions, and information sharing is promoted. In stable environments, on the other

hand, where there is little need for complex decision making, mechanistic structures with centralised authority are likely to advance organisational performance. Exhibit 3.8 shows the conclusions from the studies of the environment-structure relationship by Burns and Stalker, Lawrence and Lorsch (1967).

Similar links are done by other theoreticians like Mintzberg and Daft. Daft links a set of common organisational responses to the four environments described in section 3.3.3, grading the degree of mechanistic/organic structure to the degree of uncertainty. He states that organisations in low uncertainty environments normally have few departments and a clear mechanistic structure. Few or no integrating roles and low speed responses are also typical. In low-moderate uncertainty environments, organisations tend to need more departments and along with this more integrating roles. The structure is typically mechanistic but with a moderate-speed response to changes. In accordance to Burns and Stalker, Lawrence and Lorsch, Daft claims that the more dynamic environments, with high-moderate and high uncertainty, call for organic and decentralised structures to handle the instability. Planning is emphasised and the organisational responses to external changes must be carried through quickly. Organisations in dynamic and simple environments do, however, have fewer departments and thereby fewer integrating roles than organisations in dynamic and complex environments.

3.3.4 Fit during organisational development

As described in section 3.3.4, organisation size and life cycle stage are contextual variables that highly influence organisational design and functioning. For each stage in the life cycle, organisations are faced with a certain crises; ‘need for leadership’ in the entrepreneurial stage, ‘need for delegation’ in the collectivity stage, ‘need to deal with too much red tape’ in the formalisation stage, and ‘need for revitalisation’ in the elaboration stage.

The ‘need for leadership-crisis’ can be handled by adjusting the company’s structure to accommodate growth. The informal, nonbureaucratic structure should develop from a

typical “one man’s show” to containing some procedures. The ‘leadership-crisis’ can be addressed by introducing more of a bureaucratic structure, adding staff support groups, hierarchical levels, and formalised procedures. As mentioned, this bureaucratisation eventually creates the ‘red tape crisis’, and the solution to the ‘red tape crisis’ is to create a new sense of collaboration and teamwork. Managers must confront problems and work together throughout the organisation. Formal systems can be simplified, perhaps even replaced by manager teams and task forces. A matrix system can be created to facilitate collaboration, with teams formed across the different functions and divisions. The challenge is to work within the bureaucracy without adding to it, but the crisis is really the need of revitalisation. Mature organisations often enter periods of decline, facing the need for renewal, for streamlining, or adjustment to the changing environment in which it operates (Daft, 2007). Failing to do meet these needs usually implies having to close down.

3.3.5 Technological fit

Perrow and Thompson all belong to the branch called socio-technical systems theory which argues that to promote effectiveness managers must jointly optimise the technical and the social systems of an organisation (Jones, 1998). Many studies concerning the interrelationship between technology and structure, strongly suggest that the technology used in an organisation places specific requirements on the structure in order to achieve effectiveness.

Perrow concluded accordingly: in order to be effective, departments need appropriate structures and departments employing different technologies need to have different structures. He concluded that in general, effective departments performing non-routine tasks (high variety) are likely to have organic structures whereas effective departments performing routine tasks (low variety) have mechanistic structures (Perrow, 1965). As a practical matter, however, most departments seem to fit somewhere along the line between the two poles (Daft, 2007) and are likely to have moderations of the structural characteristics described in exhibit 3.X.

Structural characteristics	Nature of technology	
	<i>Routine tasks</i>	<i>Non-routine tasks</i>
Span of control	Wide span	Moderate to narrow span
Formalisation	High	Low
Decision-making authority	Centralised	Decentralised
Staff qualifications	Little training or experience	Training plus experience
Communication	Vertical and written	Horizontal, meetings
Overall structure	Mechanistic	Organic

Exhibit 3.9 Routine and Non-routine tasks and organisational design

Source: *Organizational Theory* by Jones, page 372 and *Understanding the Theory and Design in Organisations* by Daft, page 419

Thompson also connects technology and structure but from a different angle. As shown in exhibit 3.X, Thompson divided the demands on structure into the groups ‘horizontal communication and decision making’, ‘coordination’, and ‘location’. Most organisations experience various levels of interdependence, and can structure their departments to fit the different needs. But as decision making, communication, and coordination problems are greatest for reciprocal interdependence, this interdependence should be prioritised in designing the structure. The next priority is given to sequential interdependence, and ultimately to pooled interdependence (Daft, 2007).

Form of interdependence	Demands on horizontal communication	Type of coordination required	Priority for locating units close together
Pooled	Low communication	Standardisation, rules, procedures Divisional structure	Low
Sequential	Medium communication	Plans, schedules, feedback Task forces	Medium
Reciprocal	High communication	Mutual adjustment, cross-departm meetings Horizontal structure	High

Exhibit 3.10 Classification of interdependence and implications
 Source: *Understanding the Theory and Design of Organizations* by Daft, page 422

Perrow and Thompson both stress the need to align structure and technology. Daft (2007) adds the alignment of strategy to these contextual factors. Ha states that today's companies illustrates that failing to adopt appropriate new technologies to support, or adopting new technology and failing to realign strategy to match it, can lead to poor performance. The increasingly volatile and competitive markets of today, shorter product life cycles, and more sophisticated and knowledgeable customers demand an internal flexibility to meet these demands. He further stresses that one should always remember that the technological and human systems are intertwined in organisations. Managers must thereby seek to understand the human role in managing technological advances. Daft is supported by the socio-technical systems theory which argues that the degree of success of jointly optimising of technological and social systems greatly affects corporate culture. This issue will, however, not be considered in this thesis.

3.3.6 Cultural fit

Managers need to keep in mind the consequences on culture when designing the organisations structure for two reasons: 1, different structures give rise to different cultures, and 2, a strong culture can have a great impact on organisational performance (Jones, 1998). The two statements implies that the organisational culture should be shaped to reinforce the strategy and structure needed to be effective in the organisation's environment. In search of achieving such a fit among cultural values, strategy, structure, and the environment, one can assess what culture is needed by placing the organisation according to environmental dimensions. Daft (2007) suggests a two-by-two model with the dimensions 'degree of flexibility needed by environmental competitiveness', stable to flexible, and 'strategic focus', internal to external. These dimensions create four categories of culture that can be successful in the different settings; adaptability culture, mission culture, clan culture, and bureaucratic culture (see exhibit 3.X). An organisation that focuses on customer orientation and finds it self in a rapidly changing environment will benefit from having an adaptable culture, where entrepreneurial values are encouraged to support the organisation in detecting, interpreting and acting on environmental changes. A customer oriented focus in a stable environment can profit from a mission culture with clear visions and focus on goal achievement without the concern of constantly changing in accordance to, or shaping, the environment. The clan culture, which embodies involvement and participation, responsibility and ownership, can be an advantage for organisations experiencing environmental flexibility and internal focus. Lastly, if the organisation finds it self in a stable environment and has an internal focus, a bureaucratic culture can be beneficial, with its consistency orientation, established practices and ceremonies to support cooperation (Daft, 2007).

		Needs of the environment	
		<i>Flexibility</i>	<i>Stability</i>
Strategic focus	<i>External</i>	Adaptability culture	Mission culture
	<i>Internal</i>	Clan culture	Bureaucratic culture

Exhibit 3.11 Relationship of Environment and Strategy to Corporate Culture
 Source: *Understanding the Theory and Design of Organisations* by Daft, page 245

Daft’s relationships model is handy in assessing what kind of culture would be beneficial, but says nothing about transforming cultures that are not favourable to the organisation. The undeniable truth is that changing a culture can offer quite a challenge. This challenge rests in the fact that the factors that produce culture – the characteristics of organisational members, organisational ethics, the property rights system, and organisational structure – all interact, and that major alterations often are needed in order to change peoples values. To change the culture, an organisation may need to change its people and redesign its structure (Jones, 1998). These changes are likely to be met by resistance and must be handled wisely.

An organisation’s ability to manage, enhance, and protect its domain is maximised through recognising the impacts and interrelationships of all the contextual factors. Value creation and effectiveness are achieved through fitting the elements together, both inside the organisation itself, and to the external factors. Managers must continuously address and administer these interrelationships, and adapt the organisational structure in accordance with changes in the situation. Several studies and theories have suggested that some structural combinations work better than others in certain settings.

4 The Research Question; linking theory and empiricism

After having introduced the case and the theory considered relevant for the project, a more thorough look at the research question is appropriate. The paramount research question leads to a set of more specific sub questions. In the following these will be specified, and empiricism and theory will be linked in order to describe how they may be answered.

4.1 The paramount research question

The paramount research question of this thesis is: *How are organisational factors related to effectiveness in the after sales departments of Aker MH?* The basis is the experienced challenges experienced as the operational support services of Aker MH have been sought strengthened in response to increased demand.

4.2 Operations' contextual and structural dimensions

A sub question that follows naturally in trying to understand the situation at hand is: *What characterises the contextual settings of the after sales departments?* Theories concerned with categorising the environment, the strategy, the culture, and the technology will come handy in assessing the contextual dimensions.

Another related sub question is: *How are the divisions and departments currently structured?* Empiricism will here be used to position the current structure in accordance to the theoretical framework. The Operations division in Aker MH as a whole, the two after sales departments, and the subdivision will be subject for categorisation.

4.3 The degree of fit

The mapping and evaluation of the contextual and structural setting will be useful when assessing the question of *'to what degree do the structural and contextual factors fit?'* Several theories about organisational effectiveness through fit will be considered and the findings of the research will be used to highlight critical aspects for effectiveness in the after sales departments and possible inconsistencies between empiricism and theory will be sought.

4.4 Optimising the after sale service

The degree of fit will lead to a discussion of the several areas that might be addressed in an attempt to answer *"What measures can be taken in the search for optimisation of the after sale service?"* The inconsistencies found will finally lead to suggestions of possible actions that could increase effectiveness and achieve optimisation.

Special attention will be given to the evaluation of the Stavanger division. Purpose, opportunities, and challenges will be assessed in hope of shedding light on the value and implications of having such a subdivision. An attempt to answer the question *'what part does the Stavanger division play in the overall structure of Aker MH?'* will be thereby made.

The next step in the research process is defining what method to use in deciding which data will be necessary and how to collect and handle the material gathered. The empirical data will then be presented in detail as *'research results'*, and later interpreted and discussed, combining the findings to the theoretical framework in an attempt to answer the research questions stated in this section.

5 Methodology

The word 'science' is derived from the Latin word 'scire', "to know". The ways of acquiring knowledge have, however, varied throughout history, and the perception of what science really is, varies accordingly. Today the generally accepted interpretation is that science refers not to a body of knowledge but to a distinct methodology. The sciences are therefore not united by their subject matter but rather by their methodology (Frankfort-Nachmias & Nachmias, 1996).

Scientific methodology is a system of explicit procedures and serves three major purposes; it provides rules for communication, rules for logical and valid reasoning, and rules for intersubjectivity (Frankfort-Nachmias & Nachmias, 1996). In the search for answers to empirical questions one can choose from a set of accepted research methods. A common denominator for these methods is a collection of basic norms that are expected to be followed. These norms, or ideals, for the scientific work are accordance with reality, systematic selection of data, as accurate use of data as possible, active efforts to set aside own prejudgements, and submitting the results in a way that allows for control, re-examination, and criticism (Hellevik, 2002). Through devotion to the rules of logic and observation the scientific method can obtain scientific knowledge that can be validated both by reason and the evidence of the senses (Frankfort-Nachmias & Nachmias, 1996).

This chapter describes the research method and design chosen for this thesis and the reason for doing so. Ethical considerations are mentioned towards the end.

5.1 Research method

The accepted research methods are often categorised into one of the two entities “quantitative” and “qualitative” research. Qualitative research often combines a data collection characterised by few entities delivering vast amounts of data, with an (un)systematic presentation of stimuli and data registration. Quantitative research, on the other hand, normally combines data from many entities dealing with fewer variables, with a systematic presentation and registration. Furthermore, in conducting quantitative research, one usually follows a set pattern of actions to reach a successful result, whereas the choice of advancement in qualitative research often poses more of a challenge. The researcher will in the latter be more dependent on his or her ability to judge what method is reasonable in the set situation. In qualitative research, the key is the ability to engage one self and comprehend a pattern in the diverse set of data, rather than the measurements and analysis of a numerated extraction of the whole, conducted in quantitative research. The two methods are often referred to as collecting and issuing “hard” (quantitative) and “soft” (qualitative) data (Hellevik, 2002).

The chosen research method for this project is a case study, a qualitative research method. The case study is well fitted for situations when one researches so called “how” and “why” questions, questions of a more exploratory sort. In allowing an investigation of characteristics of real-life events, the case study can contribute uniquely to our knowledge of complex individual and organisational phenomena, and has therefore been used frequently in research on topics in social sciences such as management and organisational development. Further, the case study is favoured when researching contemporary events that cannot be manipulated, its strength being its ability to deal with a full variety of evidence, such as documents, interviews, and observations (Yin, 1994).

5.2 Design

The research design is meant to link the empirical data to the research question and to the conclusions of the study. In accordance to Yin (1994) I have addressed the five important components in research design for case studies; the research question, its propositions/purpose, the unit of analysis, the logic linking the data to the propositions, and the criteria for interpreting the findings. These elements are schematised in exhibit 5.1.

General components of research design	Components of this research design
The research question; how and why	How do structural and contextual factors influence organisational effectiveness in Aker MH? Why is it so, and how can effectiveness be increased?
Propositions & Purpose of the study	Generally accepted theoretical propositions from organisation theory. Achieving an understanding of the current situation and contingency factors affecting the organisational processes.
The unit of analysis	Divisional analysis – the two divisions and the Spare Parts and Service departments of Aker MH Operations.
The logic linking the data to the proposition	Pattern-matching; comparison of empirical and theoretical patterns.
Criteria for interpreting the findings	Ensuring genuine interpretation through verification of descriptions.

Exhibit 5.1 The components of the research design

As all researchers will be coloured by their background and the theoretical perspectives they have knowledge about, Yin (1994) stresses the importance of clarifying which theories actually form the basis of the research, the design, and the analysis conducted to highlight the (unconscious) guiding in what is or is not being looked after. A theoretical framework is therefore also a necessary component in research design, and is in this thesis thoroughly described in chapter 3.

Theory is furthermore important as it may help as a guide during the planning and conduction of the research, and also provide a frame to which the empirical data can be measured. In measuring the empirical data to the theory one accommodates for a generalising of the findings. In using case studies, we cannot achieve ‘statistical generalisation’, as one does not deal with a “sampling unit” that can be used to make inferences about a population. The researcher using a case study can, however, seek to achieve ‘analytical generalisation’ - claiming replication if the theory used is supported by two or more cases (Yin, 1994), and achieving analytical generalisation will be aspired in this project.

5.3 Data collection

Evidence for case studies may come from several sources calling for slightly different skills and methodological procedures. Relevance and availability may vary, but one should aspire to use multiple sources to achieve high quality (Yin, 1994).

5.3.1 Research interviews

Descriptions of and opinions about the situation studied have mainly been collected through research interviews as limited amounts of relevant data were available. The objective of research interviews is to collect descriptions of the interviewee’s perception of the phenomenon studied, to later interpret the described phenomena (Kvale, 1999). There are both weaknesses and strengths related to conducting interviews. Yin (1994)

points out that interviews can be targeted, i.e. focused directly on the case study topic and thereby provide valuable insight. Interviews are also flexible in the questioning process, opening for clarification and probing for additional information (Frankfort-Nachmias & Nachmias, 1996). Challenges lie, however, in bias views due to poorly constructed questions, response bias, inaccuracies due to poor recall, and interviewee answering in accordance to what is believed to be sought after and correct, rather than giving a truthful opinion (Yin, 1994).

In designing the research interviews, several essential stages must be addressed. The first one, topicalisation, or formulating the purpose of the study, has to do with mapping the reasons for the study and what to be studied, before method is chosen. Secondly, one needs to plan how to collect the relevant information, which questions to ask and which areas to cover. Moral implications should also be considered at this point. The interviews then have to be conducted on the basis of an interview guide and consideration to inter-human relations and the approach chosen should be taken. Once the interviews have been conducted, the information is readied for analysis through transcriptions from verbal to written material (Kvale, 1997).

5.3.1.1 The interviewing process

In gathering data for this thesis, interviews have been the main source of information. The interview guide is semi structured, focused, and open-ended, and the participants have been asked to describe or clarify facts as well as to give their opinion and thoughts about different matters. A general and detailed interview guide was created beforehand (see appendix 1) and shorter versions were constructed for each interview in accordance with the position and anticipated knowledge base of the participant. The questions were supplied by follow-up questions during the interview to specify or further explore the information at hand.

The interviews were conducted over a period of two months and took place at the headquarters in Kristiansand and at the subdivision in Stavanger. The duration of the interviews varied from 60 to 90 minutes and a voice recorder was used to record the

procedure. After each interview detailed and direct transcriptions were made and then sent to the applicable participant for verification.

5.3.1.2 Sample of participants

As most research in some way or another is restricted by time and funding available, generalisations are typically based on data collected from a sample, a subset, of the population. Such a subset can be used to draw precise inferences on the whole population if the subset accurately represents the relevant attributes of the whole set. The problem lies in knowing whether the subset does indeed represent all units in the population or not, and is referred to as ‘the problem of generalisation’. A distinction is made between probability and non-probability sampling, where probability sampling involves a way of specifying the probability of each unit’s inclusion in the sample (Frankfort-Nachmias & Nachmias, 1996), thereby allowing for generalisation with an exact degree of certainty. When using non-probability methods, generalisation will have to be based on assessment and a representative sample cannot be guaranteed (Hellevik, 2002).

The planned sample of interviewees for this thesis was chosen in hope of creating as broad an overview of the situation as possible. The choice of participants was made on the basis of considerations about the believed contribution each participant could give due to position and departmental and divisional belonging. The aim was a subset that would shed light on different perspectives and experiences, thereby portraying the complete picture. This non-probability method was believed to be the most accurate for this project, in spite of its possible bias (Hellevik, 2002).

Of the planned eight participants, seven were available for interviews. These seven belonged to both departments and both divisions, and represented several layers in the hierarchy. Five participants belonged to the Service department and two to the Spare Parts department. Two of the participants were situated at the Stavanger division, and the rest at the head office in Kristiansand. Two of the participants were level three managers,

three are level four managers, one was staff (HR manager), and one was a coordinator in the Service department (ref. exhibit 5.2).

Two of the respondents were interviewed twice, and one has, in addition to an interview, answered a set of questions in writing. The rest of the respondents were interviewed only once.

Exhibit 5.2 depicts the position of the participants of the project. The planned participant that was not available for interviews was the level three manager at the Stavanger office.

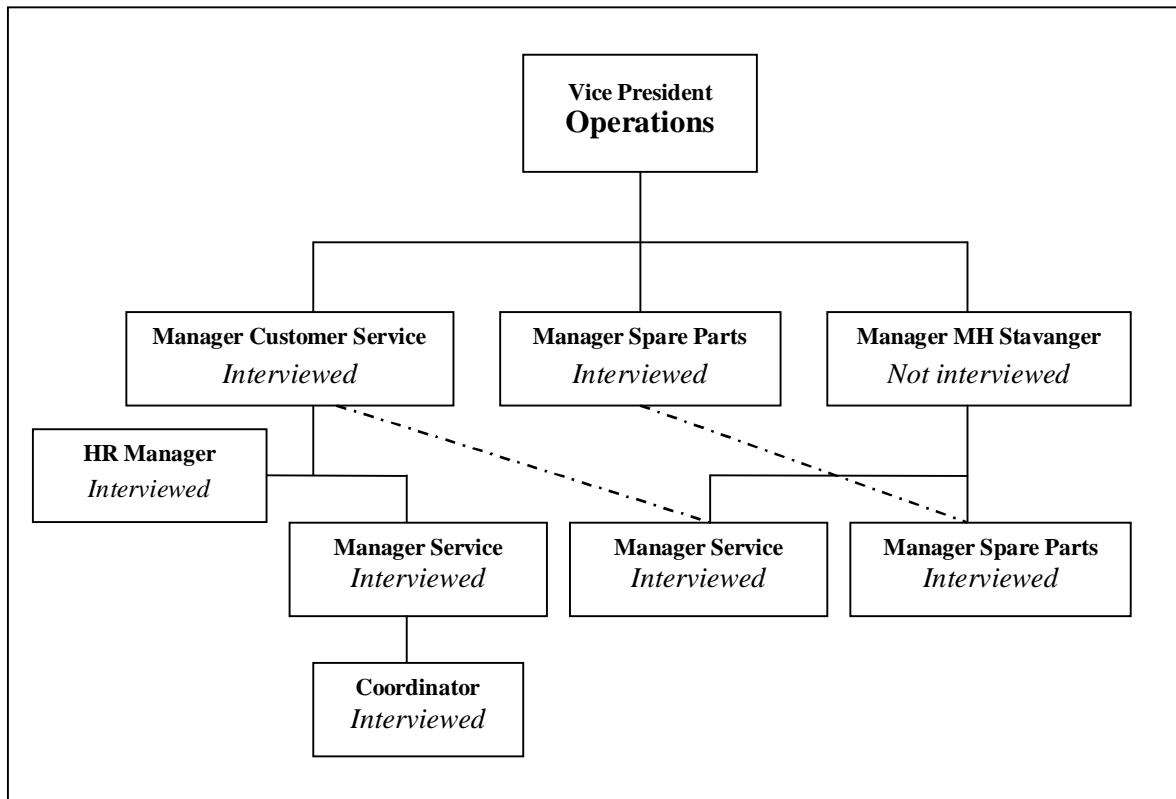


Exhibit 5.2 Organisational chart depicting participants

5.3.2 Documentation

Some documents have also been used in the data collection process to support and extend the evidence from the interviews. Information is gathered from internal strategy documents and publicly available information sources such as company brochures, the company web page, and other sources considered “secure”. The material gathered from the publicly available sources has for the most part been used to describe the case. In collecting data from these documents, considerations have been taken to the fact that the documents were written for another purpose than this case study and the possibility of misinterpretation and bias disclosure.

5.4 Analysing the data

There are numerous approaches to qualitative data analysis and the basis of the study’s purpose and the nature of the material from the interviews should direct the choice of method (Kvale, 1997). Some common analytical practices exist across the different approaches involving data reduction, data display, and conclusion drawing/verification (M. B. Miles & Huberman, 1994).

5.4.1 Reducing, sorting and displaying the data

Reducing the amount of data is often required as collection of data easily results in a vast and over-complex amount of information. Through data reduction one selects, simplifies, and transforms the data, thereby creating a more manageable and relevant data base. Sorting the material facilitates isolating and identifying of patterns, themes, common features, and dissimilarities, which again facilitates the interpretation of the findings (M. B. Miles & Huberman, 1994).

Having a case study data base will not only create a manageable repository, it will also help to deal with the problems of establishing reliability. There are numerous ways of creating such a data base, the important aspect being that the report contains sufficient data so that readers can draw independent conclusions about the case study (Yin, 1994).

In sorting the material from the interviews, tables were created. All questions from the original interview guide were entered, and the according responses were displayed in the belonging rows, one participant next to the other. The complete table constituting the data base is not attached in this paper in accordance with anonymity requirements, but the findings are thoroughly described in the section called “Results”. These findings form the basis on which the analysis is made.

5.4.2 Interpreting the data

In qualitative research, noting regularities, patterns and possible explanations are often done from the very beginning of the data collection and sophisticated and adjusted as the material is interpreted (M. B. Miles & Huberman, 1994). Interpreting the findings is considered to be a challenging part of the research, and demands an open yet critical mind. An interpretation can never be claimed to be correct but the researcher can generate confidence in the accuracy of the explanations given. In interpreting and concluding the findings, the researcher faces two dilemmas. One of these is the balance between the descriptive and the interpretive presentations, the other the balance between the researcher’s interpretation of a situation and that of the participants. One of the goals of the project has therefore been to present interpretations the participants can agree with, depicting the situations in such a way that the participants recognise the descriptions (Hellevik, 2002).

5.5 The quality of the research

In assessing the quality of the research, one must address the validity and the reliability of the data. Random or systematic errors may have occurred during the measurements resulting in an incorrect or even false understanding of the situation. Reliability testing is concerned with the accuracy of the data collection, whereas validity is concerned with the collected data's relevance to the research question (Hellevik, 2002), thereby assessing whether one has really addressed what was to be examined, or not.

5.5.1 Internal validity

The problem of validity arises as most of the measurements in the social sciences are indirect. The researchers can therefore not be completely sure that they measure the variable they intend to, and evidence supporting the measuring instrument's accuracy must be provided (Frankfort-Nachmias & Nachmias, 1996).

There are several kinds of validity, each concerned with different aspects of the measurement situation.

There are no precise procedures for evaluating the measuring instrument used in the study. Validity of a study's content can, however, to some extent be expressed by 'face validity', which concerns the extent to which the researcher believes that the measuring instrument is appropriate. Face validity can be claimed if agreed upon by specialists (Frankfort-Nachmias & Nachmias, 1996).

The development of the measuring instrument of this project, the interview guide, is based on theory and has been thoroughly assessed by both the candidate (the researcher) and the teaching supervisor of this thesis. It is believed to have face validity.

'Construct validity' is established by relating the measuring instrument to a general theoretical framework. An evaluation of theories that might serve as the foundation of the

instruments should thereby be done before constructing the instrument (Frankfort-Nachmias & Nachmias, 1996).

The meanings emerging from the data interpretation must also be tested for their validity (M. B. Miles & Huberman, 1994). To secure as correct an interpretation as possible, clarifying follow-up questions have been asked during the interviews when necessary. The transcribed interviews have also been sent to the participants for verification, resulting in some information being added or changed. Emphasis has been given to creating a recognisable description of the situation keeping a critical assessment of interviewer's influence on the situation and own perception and perspectives.

5.5.2 External validity

External validity expresses the degree to which the conclusions of the study can be generalised to a larger population and be applied to different settings (Frankfort-Nachmias & Nachmias, 1996). One of the challenges of the case study lies in the fact that there is little basis for scientific generalisation from a single case study (Yin, 1994). Yin (1994) addresses the problem of generalising by stating that case studies are generalisable to theoretical propositions and not to populations. The case study does in this sense not represent a "sample". Critics further typically contrast the case study to survey research, where a "sample" can be generalised to the population as a whole. When dealing with case studies, Yin (1994) claims this analogy to samples and universes to be incorrect as survey research relies on statistical generalisation, whereas case studies rely on analytical generalisation.

The aim of this thesis is not to draw conclusions that can be applied to a whole universe of companies, but rather to gain and present a comprehension of the aspects affecting effectiveness in Aker MH. The goal is thereby to arrive at an interpretation that is relevant for the company in question. Hope is nevertheless that the thesis can be of value for organisation experiencing similar settings and settings to those found at Aker MH.

5.5.3 Reliability

Reliability has to do with the quality of measurement (Trochim, 2006) and refers to the extent to which the process of the study is consistent across researchers and methods. In assuring "consistency" or "repeatability" of the measurements (Trochim, 2006) reliability is a sort of "quality control" of the study (M. B. Miles & Huberman, 1994).

Several steps have been taken in order to facilitate repeatability of this project. The positions and departmental and divisional belonging of the participants have been explained, documents used have been referred to, and the interview guide utilized has been attached. These measures increase the possibility of another researcher achieving the same results. However, as people may change their opinions or their assessments of the issues researched, some divergence may appear between the results of this thesis and a replica, even though the same respondents participate in both studies. Results may further vary due to dissimilar conclusions made by researchers. This is addressed by clarifying the theoretical framework on which conclusions are drawn.

5.6 Ethical considerations

Two common issues are present in the ethical decision-making when designing research. One such area is the right to privacy during and/or after the study. The sensitivity of the information, the situation being observed, and the extent to dissemination of the information decides how private the given information is. Privacy can be protected by maintaining anonymity of the participants and keeping (certain) data confidential (Frankfort-Nachmias & Nachmias, 1996).

All interview participants are kept anonymous in accordance with the privacy issue and the participants' comments and corrections to the collected data have been added in accordance with their wishes when present.

The other ethical issue to consider is the informed consent of the participants (Frankfort-Nachmias & Nachmias, 1996). To meet this criterion, all participants have been formally asked whether they would like to participate in this project, and interviewed on consent only. The voice recorder was further only used when given permission to do so. When interviewing the participants, an introduction to the purpose and intended use of the research was given and all answers regarding the thesis have been answered openly. The questions in the interview guide have been revised to assure comprehensibility and emphasis has been put on not asking questions that may have a negative impact during or after the study.

Last but not least, attention has been given to creating something of value to Aker MH. During the project period there was continuous dialogue with the key contact at Aker MH and the teaching supervisor of the thesis in order to be better able to shed light on and evaluate the significant aspects.

6 Results

This section presents the empirical findings of the research. The data collection resulted in a vast amount of information from both documents and interview transcriptions, some more relevant to the topic of this thesis than other. Some of the information gathered has therefore not been presented or included in the analysis. The material from the interviews has been sorted in tables according to the variable it concerns and is in the following presented in accordance with this grouping.

As each interview guide was formed according to the position and knowledge base of each participant, the number of answers to each question varies from three to seven. In accordance with the anonymity issue is only information from documents referenced, and considerations have been taken to prevent exposing the respondents' identities. Divergences in responses are therefore explained as "disagreement among participants" and patterns grouping the answers by division or location are mentioned where applicable. Information from all respondents has been used.

6.1 Environment and market

Descriptions of the market depict an environment characterised by high speed and increasing demand for the services of Operations. In fact, it was pointed out that MH is struggling to keep up with demand.

The markets are characterised by continuous technological development which results in new tasks and changes in the knowledge base and expertise needed. An example mentioned is 'remote diagnostics' which facilitates conducting the work at the computer at the office in stead of having to travel to the actual site to do the work. The development in technology is broadly considered as creating opportunities rather than

being a constraint, but the need to continuously update the skills of the service engineers is mentioned as somewhat overwhelming and a bit of a challenge in these busy times.

The technological trends describe an increased use of computerised systems and are usually first utilised on sites in the North Sea. The more advanced technology and high oil prices increase the attractiveness of sites that have earlier been left unexplored as considered too difficult and too expensive to operate, something that opens up for continuing the high activity in spite of few new reservoirs having been found in recent years.

The market is in general described as flooded by opportunities and there is generally high availability of operational expenditure capital.

The market challenges mentioned are mainly concerned with the scarcity of resources. The Spare Parts department struggles with long, and, it seems, continuously expanding delivery periods of most parts. The spare parts market is characterised as “under great pressure” and prolonged delivery periods causing great frustration are not uncommon. Supply of qualified workers is also noticeably lower than demand, and difficulties in acquiring an adequate amount of new employees are mentioned by several of the respondents. The high demand for available workers further limits the possibilities of training periods for the existing employees. The industry’s competition over the available work force is by several mentioned as clearly affecting the scope of operations. Rotation sequences and regulations about “resting periods” for service engineers after being offshore at the Norwegian continental shelf are mentioned as restrictive as well.

Considerations to health, safety and environment (HSE) are considered as of high priority but regulations vary widely from nation to nation. The North Sea is subject to far stricter HSE-regulations than the rest of the world which results in this being the lead segment when it comes to using technologically advanced equipment. There is, however, a general global trend focusing on removing workers from the deck during operations, in order to lower the risk for accidents.

Regulations are not considered as significant or restrictive to the work done by the respondents in the Spare Parts division as by respondents in the Service department.

The markets are for the Spare Parts department considered to be predictable whereas respondents belonging to the Service department expressed lesser predictability in their market, in spite of often knowing the customers' maintenance plans. This seems to be connected to the uncertainty experienced regarding the tasks the service engineers are sent out to do. The actual task needed to be done is often quite different than what is being described to the service engineer beforehand. The reason for this uncertainty is basically a communication and competence issue, as the original information from the customer often is incorrect or incomplete, and/or is imperfectly passed on through the links before it finally reaches the coordinators and the service engineer.

Market competition is based around technology, quality, and service, whereas the latter include effective delivery of spare parts and handling of repairs and overhauling. The big companies, such as Aker MH, also compete on being able to deliver complete solutions. As demand for Operations division's services is directly linked to what is being done by other divisions in Aker MH, competition is not considered as affecting the work of either after sales departments in question. They receive several years of commissions in the wake of successful deals done by other departments in the company.

Existing customers have announced large maintenance programs and as it is more of a matter of course that service engineers from Aker MH overhaul Aker MH equipment, implications are that the Operations division will not be out of business for many years to come.

Some new entrants come into the market, yet these are smaller, more specialised companies and are therefore not considered a threat. In fact do many of the smaller competitors work as Aker MH's suppliers of specialised equipment in commissioning complete packages sold to Aker MH customers.

Suppliers are many and deliveries vary both in volume and in degree of complexity. Most suppliers are frequently used and several have committed to long lasting delivery arrangements. As market demand for supplies is pressured and increasing, Aker MH is constantly seeking to secure and quicken the speed of deliveries by adding pressure and searching for supplemental suppliers. New suppliers do appear, but not in a scale that helps meet the “ever increasing demand”. No obvious solution has so far been found to the deliverance challenge as the suppliers themselves suffer from resource shortage.

The amount of customers is high, and their size and national belonging varies. Many of them are deeply involved in designing the equipment, resulting in many specialised one-offs and a high degree of customisation in parts of the equipment supplied. The customisation is said to be the result of customer demands and an incorporated culture to comply with these demands. Efforts to decrease the degree of customisation are, however, expected to be introduced in the near future, as standardisation of equipment is considered more efficient and profitable and has proven to work well by competitors.

Their bargaining power over customers is considered relatively low but is said to be higher today than what was the case a couple of years ago. The customers are characterised as strong-willed, yet understanding, and the relationship with the customers is described as good. Information about the market is mainly gathered through feedback from customers.

When asked about whether it is natural to divide the markets between the two divisions or not, respondents at the Stavanger office answered yes, whereas opinions were mixed at the head office. Respondents disagreed or were uncertain about the possibility for and need of clear segmentation, and whether this would be functional. There seems, however, to be a general agreement that a functional division of the market is more easily accomplished in the Spare Parts department than in the Service department, as the latter is in short supply of people and therefore sends whoever is capable and available to do the task, no matter the divisional belonging.

There was little worry to trace in the answers to the questions of what is to come, and the general response was that not too much effort is put into speculating about the future. Respondents from both departments seem confident about the future, and state that the forecasts are good. One of the respondents did, however, point to potentially “dark clouds in the horizon”, such as increased environmental focus potentially restraining the oil industry.

6.2 The organisation and its structure

The participants’ communicated perceptions of the organisational settings differ highly. The responses vary from characterising the organisation as lacking sufficient structure and formal procedures, through being well structured, and finally to being victim of an increasingly restrictive and bureaucratic structure. No clear pattern in the answers could be found in considering respondents’ divisional or departmental belongingness.

The responses to what can be characterised as the organisational strengths were many and varied. In fact, only one of the respondents’ characteristics – presence at many important locations world wide, was mentioned more than once. Other strengths mentioned were such as a robust organisation pursuant to finances, employment and resources, having a senior group of specialised engineers, and a sound attitude with emphasis on solidarity and adaptability, dominated by solution orientated people and willingness to change.

When it comes to weaknesses, there was general agreement by respondents in both departments at both locations that many operations are restricted by project claims on resources. Growing-pains such as lacking structural support to the increased amount of operations, insufficient employees and competence, obscurity and poor procedures, and too much tacit knowledge, were also mentioned.

Two factors were mentioned as restrictive to the operations; increased delivery time on spare parts from suppliers, and scarcity of qualified service engineers. It can clearly be

seen that the two divisions struggle with dissimilar challenges, challenges that are appurtenant to their particular operations. Several participants did mention the challenges facing the other division, but only secondary.

The two divisions diverge significantly in several aspects. The number of departments in the divisions and the sizes of these are not surprisingly much larger at the head office than what can be found at the Stavanger office. The Stavanger office is comprised of three departments; Spare Parts, Service, and Purchase, whereas these and several more, like Training, Senior Service, and Operations Support Centre, are stationed solely at the head office. The estimated total of workers in the Operations division is 250 people, and about 25 of these belong to the Stavanger division.

The respondents agreed on a relatively high degree of standardisation of tasks and skills. Two respondents did, however, communicate an experienced lack of consistency in general routines, expressing a wish to strengthen correspondence and standardisation of these.

The tasks carried out by the employees in the Spare Parts department is said to be somewhat standardised, following a certain pattern and aiming at a specified goal. There is, however, a deviation in the task executions between the two divisions; employees at the Stavanger office tend to actively seek to sort out the enquiry faster than the computer system prepares for, whereas workers at the head office more rigidly follow the system.

Formalisation is described as high by all respondents belonging to the Service department and low by those in the Spare Parts department. In the latter, only manuals concerning the different parts and communication with the customers are stored, and little or no manuals or documents on procedures, regulations, or the processes conducted are made.

The employees in the Spare Parts department are relatively specialised, and are divided into the three groups: sales personnel (expeditors), follow-up personnel, and technical executive officers. Sales personnel are found at both locations whereas the other two groups are situated at the head office. The expeditors in Stavanger are said to have a

greater variation of tasks because of the lack of specialised groups in the division, even though the more difficult tasks are sent to the technical officers. Standardisation is nevertheless not complete, as the different employees are assigned their own customers, which in turn lead to a slight difference in tasks asked to do.

Specialisation in the service engineers is characterised as medium.

Training and education level needed to do the work in the Spare Parts department is characterised as low, whereas technical background and extensive participation at courses are needed to operate as a service engineer. Some, but not all of them have an engineer's degree from university or college.

The Operations division have a highly advanced training facility in Kristiansand. Major investments have been made to achieve quality training in accordance to clients' demands and governmental regulations. An example is a program where over 30 recent graduates have been hand picked in order to assemble a group of service engineers that can work the new Aker MH equipment.

Learning, both individual and organisational, is of higher priority in the Service department than in the Spare Parts department. Efforts are said to be put on assigning service engineers from the both divisions on two-man jobs to facilitate experience transferring across the divisions. Service engineers also appear to go through more formal training during their career than do employees in the Spare Parts department.

Communication between employees on the same level is relatively low as much of the work done in both departments can be done independently. However, there seems to be a low threshold for communication when updates, advice or second opinions are needed, both within and across the different levels. Communication across levels, both regarding profession and personnel issues, is stated as good by all respondents. The service engineers communicate frequently with coordinators and administrative personnel.

The structure is characterised as well suited for cooperation with other departments for those that need this, especially so in Kristiansand, where location is of little hindrance. Coordination between the divisions is for a large part done through integrating roles,

which for the most part are assigned to managers. Official coordination positions are, however, to be found in the Service department, and play an important role in assigning the service engineers to the different tasks.

Boundary spanning is said to be done mainly through contact with customers during task execution. The manager of the Stavanger division is however, characterised as “a main link to information” due to his frequent interaction with key customers and his well established customer relations.

Research and development is not considered to be part of the concern of Operations, and is paid little or no attention. The service engineers do, however, to some degree communicate experienced difficulties with equipment to the Design department. This seems to be done more by the service engineers that belong to the head office as the Design department is placed in immediate proximity. The potential for improving the feedback to the design and production departments is acknowledged by several of the respondents, yet mentioned in the same sentence as “no one in the industry is good at that”.

6.3 Management

The structure is in general perceived as flat and not restrained by too much hierarchy or top down decision making (authority). The hierarchy is generally perceived as readable and clear, and respondents expressed contentment with the reporting system.

The ratio of managers to employees varies between the departments and between divisions. The Service department employs noticeably more people in both divisions, and is also subject to rapid magnification. Both departments have a larger amount of employees at the head office than what can be found at the Stavanger office.

The reporting system and the dialogue across hierarchical levels are in general characterised as well functioning and unproblematic. The control mechanism is characterised as spot checking rather than continuous supervision as work independence is high. All respondents in managerial positions emphasized the advantages and own willingness to keep an open door policy, making themselves available for inquiries of all sorts. They also lay emphasis on having more communication with their employees than they themselves have with their superiors.

Management and department meetings are held regularly to discuss progress, direction and challenges. Respondents put emphasis on the cultural openness for personal suggestions and ideas, accentuating satisfaction of being listened to. Much communication is also said to be done “by the coffee machine” and during lunch time creating an environment of openness and frequent updating.

The responsibility for personnel and professional matters is in many cases divided between the managers. The Stavanger division clearly demonstrates this; the level four managers in the Spare Parts and Service departments address the level three manager at the Stavanger office in personnel matters, and the appurtenant level three manager in Kristiansand in professional matters. This dual authority system has been characterised as working relatively well, yet some confusion related to changes in the system and conflicting messages were mentioned.

6.4 Decision making

The general decision making in the company is considered to be relatively decentralised. Greater decisions are taken on higher levels, whereas level 4 managers, who are responsible for everyday conduct, make decisions related to everyday issues. When decisions are in so called grey areas, or when there is uncertainty about what to do, issues are raised to a higher level and discussed there. The service engineers seem to have more authority to make decisions than do the employees of the Spare Parts department. This

difference seems to be related to the different nature of the tasks performed. All respondents did, however, agree to feel free to make decisions within their expertise and reference frame. The system is in general described as just, but some discontent was shown towards what is described as “resistance to make decisions” by those on a higher level, and alterations of plans and decisions already made and communicated down the line.

6.5 Strategy and goals

The vision of Aker MH is to be the preferred partner through a HSE mindset, an open and direct dialogue, customer drive, team efforts, hands-on management, and by delivering results (AkerKvaerner, 2007). These focus areas are emphasised throughout the entire organisation and is the foundation on which more specific departmental goals are set.

The Aker Kvaerner MH General Catalogue of 2007 articulate ambitions focusing on high standards and quality in equipment and systems (HSE), totality in deliverances (including operational support), and technology development (preferably in close cooperation with key customers) maximising efficiency, operational uptime, and high end solutions (AKMH, 2007b). Aker MH seeks to be known as the drilling equipment supplier with the best completion and after sales services. To aspire to this, the Operations division aim at having satisfied customers, keeping and attracting competent staff, and developing maintenance concepts for the future. Focus is being placed on a zero incident mindset and a Just Care culture (Marcussen, 2007) and an increase of the service organisation is announced in order to meet the anticipated after sales and operational support requirements. When it comes to procurement, the Operations division aim at establishing new and maintaining existing sub-suppliers, and induct frame agreements. Efforts such as a doubling of the international service staff and upgrades of service bases and facilities are announced (AKMH, 2007b).

The Service department's strategy documents accentuate the Just Care culture and a zero incident mindset *inter alia* by having clearly defined HSE interfaces with yards and encouraging an active use of Stop Cards to prevent unsafe work for all Aker MH personnel. Financial goals are such as delivering results in accordance to owners' expectations, and justifying capital expenditure. Market goals are to build trust and personal relations to important customers and creating alliances through, and actively use the global network of Aker Solutions. Connected goals are a flexible utilisation of the global staff (ONE Aker Solutions) and alignment of attitude, loyalty, and team spirit for all personnel. Communication is sought to be improved, followed by consistent and user friendly procedures and guidelines pursuing the best practice principle (Marcussen, 2007).

The Kristiansand division of the Service department has specific goals including motivating, supporting, and challenging the subsidiaries and regional offices, and developing management competence. The specific goals for the Stavanger divisions are such as increasing procurement capacity and local spare part stock, and establishing local project management to assist Aker MH with overhaul and upgrade projects in Stavanger (Marcussen, 2007).

Strategy documents for 2008 show that the Spare Parts department is dedicated to strive for exact deliveries of parts, emphasising the parts being in the right condition, accuracy of the drop point and the belonging documentation, and proper delivery time. There is a worldwide focus with goals concerning globally available stock for all clients and global spare parts service 24/7. Other goals deal with cataloguing and securing availability of parts through storage of popular parts (Vindenæs, 2008).

Respondents prop up the written goals when asked about strategy. Especially Uptime 2010 is mentioned. Long-term goals are said to be set by level 2 and 3 managers, but the respondents at level 4 feel included in designing these, and shape the more specific goals for their own unit themselves. All respondents asked considered the strategy to be in

accordance with the organisational structure, the market, the technology, and the competence possessed by the company.

Strategies and goals were in general regarded as communicated well down through the system. Especially the introduction and start-off of the Uptime 2010 project was considered to be thoroughly done, with a proper start date and focus.

When asked about changes in direction, the participants did not consider the main goals as having been altered. Several recent changes were, however, mentioned, such as specialisation, e.g. movement towards more of a project focus. There was some indistinctness to be traced regarding what is to become of the Stavanger division. Several respondents were clear about the division's future growth, but exactly how and in what direction was more uncertain. Some of the earlier plans for the division have been withdrawn after the first steps of the plan have been taken.

6.6 Evaluations

When asked about evaluation en general, the respondents harmoniously declared this to be a weak spot; at a very low degree or even inexistent. By those stating that some evaluation was being done, customer satisfaction sheets, yearly appraisal interviews, and management reviews were mentioned. Debriefing was in fact part of the job of the service engineers, but this was more of a statement on what has been done and what might need to be done by the next shift, rather than a description of how it went, why, and what could have been done differently. Respondents admitted that defaults and difficulties with the equipment were said to be communicated to the production and design departments only to some degree. A doctorate and a master's degree student were, however, recently set to evaluate the need for, and process of, evaluation and feedback.

6.7 Culture

There was recently created a code of conduct called “Uptime 2010” by and for the Operations division. Five statements concerned with focus on goals and results, mercenary spirit and customer orientation, strong teams, and energetic and positive attitude in a caring culture, are connected through the slogan “we fight together” (see appendix 2). These directives were considered to be the main focus of the Operations division in order to reach a set of operational goals by 2010. The code of conduct was introduced through several ceremonial activities.

When describing the general culture, there seemed to be an agreement that there were cultural differences between the two locations. The culture at the Stavanger office was in general described as more customer orientated and dynamic than that at the head office, including a willingness to actively seek to meet the customers’ wishes despite system restrictions. The value of the customer orientation was by all respondents characterised as important and valuable, but clearly different opinions were stated when it came to valuation of the “shortcuts” taken in order to please the customers. The physical distance to the customers at the head office was by several described as the cause of a “mental distance” to the customers, where one more easily gives them lower priority.

Cultural differences in regional personnel characteristics, “Sørlendinger” vs. “Rogalendinger”, were mentioned at several occasions, especially by the “Rogalendinger” themselves. Common cultural characteristics were said to be an around the clock cowboy attitude, where one has a tendency to “fire, shoot, and aim”, rather than to “aim, shoot, and fire”. The reasons mentioned for this behaviour vary from a necessity of the business, demands by customers, and too little structure and procedures.

6.8 MH Stavanger

The original motive for establishing the Stavanger division was to facilitate further customer contact. The customer contact was by all respondents stated as the division's most important contribution to the company, and the exceptionally customer oriented culture in the division was stressed. Access to customers was said to be facilitated by establishing the Stavanger division, as many of them are located in or close to Stavanger or easily could be reached and supplied from heliports and a larger airport close by the Stavanger office. Another customer oriented characteristic mentioned is the ability to quickly turn the division around in order to meet customer needs.

The division was originally thought to be the sole spare parts server of the North Sea and base of service engineers doing ad hoc tasks as opposed to serving projects. This has worked out to some extent, as the Spare Parts department in Stavanger is the main supplier of parts to the North Sea customers, only backed up by Spare Parts Kristiansand in more complex cases. The idea that service engineers in Stavanger would do ad hoc tasks whereas those employed in Kristiansand were to belong to projects, has, however, not been followed through. The service engineers in Stavanger were swiftly put on projects as workers were needed, and are now considered to be part of the general service pool rather than belonging to "Service Stavanger". Some considerations were, however, said to be taken as to send Stavanger employees to serve North Sea customers when possible.

The Stavanger office represents a golden opportunity to hire employees for the Service department who wish to be based in Stavanger as opposed to Kristiansand, thereby facilitating the company's struggle to employ sufficient qualified workers. About 20 service engineers have been added to the Operations division's pool of service engineers since the Service department in Stavanger was established two years ago, representing a valuable contribution. Another five to ten are expected to be added, thereby adding up to about 20 % of the total service engineer workforce.

When questioned about the challenges of being at a different location than the head office, many respondents acknowledged the fact that the Stavanger division to some extent struggle to be heard. Anticipations of role and direction vary and they seem to pull in a slightly different direction. Lack of organisational learning across the two divisions is also mentioned as an issue.

There seem to be no concrete or fully supported vision for the Stavanger office. The communicated ideas for the future were for the most part, but not exclusively, aspiring. Some respondents visualise more independence, possibly by assigning specialised tasks to the division in order to for it to “best at” something, while others imagine transforming it into a miniature version of the head office. Again others consider the act of decentralising warehouses and spare parts delivery as a dead end, hindering efficiency and coordination.

6.9 Cooperation across divisions

Cooperation between the divisions was by representatives from both the Service department described as excellent. The participants emphasized a common understanding and willingness by representatives from both divisions to advance as a whole. The service engineers stationed at the two offices were considered part of a collective pool, and not really as belonging to one office or the other. Coordination of activities and assignments was described as done by several coordinators and by the Operations Support Centre (OSC) that originally receives the orders from the customers. Tasks are assigned according to capability and availability, yet considerations are taken regarding the possibility for exchange of experience when pairing up teams.

Cooperation between the two divisions of the Spare Parts department is characterised as more troublesome. There have recently been several changes in processes and direction due to exchange of key departmental figures, causing some disagreement and discontent.

Yet progress has been made and both parts seem optimistic about further improving the cooperation.

Communication is for the bulk part done over the phone and mainly between the level 3 and level 4 managers. The frequency of visits was mentioned as subject to potential improvement. The Stavanger division is only one of many Spare Parts divisions the level 3 manager of Spare Parts have to act in accordance with.

6.10 Effectiveness assessment

Focus on effectiveness was said to be prioritised by the Spare Parts department, whereas the respondents from the Service department prioritise “correctly executed work”.

Most participants evaluated the general degree of effectiveness in execution of tasks as low. One of the reasons mentioned by the respondents belonging to the Service department is constraints created by regulations and work rotation. “Resting periods” and max-time restrict the actual availability of the employees during the five weeks they are to be considered as available to work. Both coordinators and service engineers were portrayed as somewhat flexible about the boundaries of the rotation periods to increase effectiveness.

Effectiveness was also said to be restricted by the fact that the current amount of service engineers is unable to meet market demand. Furthermore are highly qualified service engineers often transferred to work on fixed projects, leaving the less experienced to deal with often complicated and intricate ad hoc tasks.

Another challenge to effectiveness is the uncertainty of the tasks to be done at site and the time frame demanded by customers. Incorrect or insufficient information from the customer and desire to fix the problem quickly may lead to sending out someone lacking the competence needed. In order to be better at sending the right person for the assignment at hand, the service engineers’ levels of expertise are now being catalogued and courses given in order to reach a carefully considered dispersion of skills.

Two respondents pointed at the bureaucracy being insufficiently evolved compared to the recent growth of the organisation, hindering effectiveness and efficiency. More subsidiary functions were believed to be needed. The need for more thorough and commonly followed procedures was also mentioned.

The perception of own effectiveness degree is believed to be higher by respondents in Stavanger than those in Kristiansand. The head office is considered to be more rigid and slow by respondents in both divisions.

The importance of, and need for, an increase of effectiveness varies from acceptance of the current level, through satisfaction with the current situation, to a stated acknowledgement that there is room for improvement.

6.11 Organisational change

There was no main factor stated as causing organisational change or the need for such, yet technological development, organisational growth, HSE-focus, and increased demand were mentioned as influential. All respondents notified that they had earlier experienced organisational change, mainly as smaller restructuring measures, and that such changes were frequently made and relatively unproblematic for the organisation. The general agreement was that the changes made were necessary and part of a natural progression resulting in improved work situations. Some respondents did however communicate discontent with what they considered to be a somewhat confusing and discouraging trial-and-error policy where changes are announced, perhaps even implemented, only to be reversed.

The results of the research show several interesting findings about the factors that are regarded as relevant in considering the effectiveness of the organisation. The next section is dedicated to interpreting these findings in the light of the theoretical framework explained in chapter 3.

7 Interpretation and discussion

Effectiveness was in the theory chapter described as achieved through fit. Structural design was stated to be a key variable in optimising organisational performance, and said to be arranged in such a way that the internal settings fit among themselves and to the context in which the organisation operates. This section is dedicated to interpreting the findings from the research on the basis of the theoretical framework. The degree of fit in the after sales departments in Aker MH is then evaluated and possible actions to increase effectiveness are discussed.

7.1 Organisational effectiveness measures

In considering the effectiveness approaches used in the two after sales departments, it appears that departmental effectiveness is assessed mainly by utilisation degree of workforce regarding rotation (the Service department) and delivery time and accuracy (the Spare Parts department). Both approaches are thereby resource oriented, measuring indicators that reflect to what degree they effectively obtain the resources needed for high performance, respectively qualified service engineers in the Service department, and correct parts in the Spare Parts department.

In mapping the effectiveness values and goals of the departments along the dimensions of the integrated effectiveness model described in section 3.3.2, however, a broader and more nuanced picture is portrayed. The Spare Parts department can be positioned in the lower right part of the model and the Service department slightly more to the left, as shown in exhibit 7.1. The positioning is based on the departmental focuses, which is neither clearly internal nor clearly external, as the departments seem to be concerned both with the well fare of the employees as well as the division as a whole with respect to the environment, and the structure, which is more efficiency than learning oriented. The differences in the positioning are partly due to the focus on developing human resources

in the Service department, and lack of such in the Spare Parts department. The higher focus on learning makes the Service departments cover more of the Human relationships emphasis than the Spare Parts department. Similarly, the higher degree of concern for resource acquisition in the Spare Parts department is causing the Spare Parts department to cover more of the area of the Open systems emphasis than does the Service department. Both can, however, be characterised as being situated at the lower and middle part of the framework, which is typical for established businesses in which the dominant value is productivity and profits and structural control is preferred over flexibility.

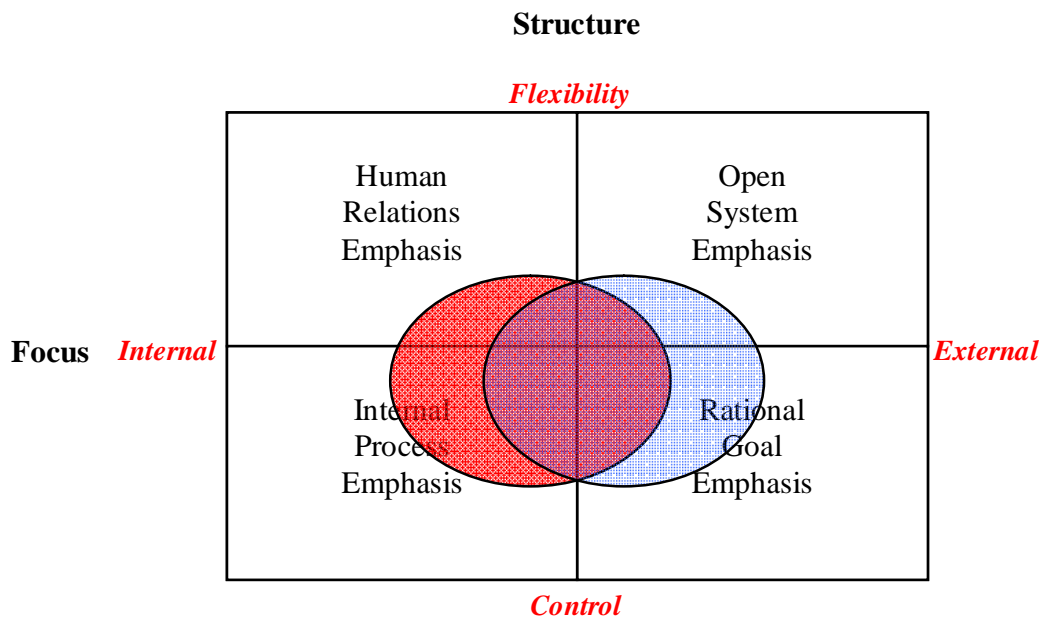


Exhibit 7.1 Positions in the integrated effectiveness model
 (The Spare Parts department in blue and the Service department in red)
 Source: *Understanding Theory and Design of Organizations* by Daft, page 176, and research material.

Considering the nature of the industry and the activities performed, the departments could, however, probably benefit from being primarily externally oriented. An external strategic focus makes an organisation more sensitive to the changes and needs of the environment, facilitating for fast and appropriate responses when needed. Both

departments are performing tasks that are directly involved with the dealings and needs of the customers of Aker MH and the current and more internal positioning described above may therefore not be optimal.

7.2 Labelling the contextual factors

In order to explore the degree of fit in the after sales service in Aker MH, the contextual factors must be classified. This section is dedicated to labelling the contextual factors so that the degree of fit later can be addressed.

7.2.1 Structure

The tasks performed in the Operations division are not directly involved with the design or assembly of the Aker MH equipment. They are, however, involved with the manufacturing of the total package of products and services and belong to what Mintzberg (1983) characterised as the operating core of Aker MH. The departments do nevertheless work as their own mini-organisations, and have their own particular structures with their own organisational parts.

7.2.1.1 Structural dimensions

The findings of the research described structural dissimilarities between the after sales departments. The different units have therefore been evaluated separately, and then been compared, to create a detailed description.

Departmental structures

When considering the tasks performed by the after sales division, one might think that the structure would vary somewhat between the departments. This holds to be true, as shown in exhibit 7.2. Such a classification of the two departmental structures based on the

structural dimensions explained in section 3.3.1 allows for categorisation, and comparison of the two departments.

Structural Dimensions	Spare Parts department	Service department
Hierarchy of authority	Flat	Flat
Span of control	Low	High
Personnel ratios	Low	High
Centralisation	Medium	Low
Formalisation	Low	High
Specialisation	High	Medium
Professionalism	Low	High
Communication	Mostly vertical	Mostly horizontal
Coordination	Some standard. of outputs	Direct supervision
Learning orientation	Low	High
Integrating roles	Few	Some

Exhibit 7.2 Classification of structural dimensions in the Spare Parts and Service departments

The Spare Parts department

There are not many hierarchy levels and there are relatively few people employed in the Spare Parts department, indicating a flat structure with low span of control and low personnel ratios. Decisions seem to be made mainly at middle management level as performance of tasks follow a 'natural order' in which few decisions are needed to be made. The degree of centralisation can thereby be said to be medium, and also vertical, as authority to make decisions are delegated according to the formal power line. Some documentation on procedures and rules is said to exist, but as these are not used and followed, and as very little of what is being done is written down, the degree of departmental formalisation is low. The range of tasks is relatively narrow, implying a high degree of specialisation. Professionalism and learning orientation can further be characterised as low, as little formal training is needed in order to perform the tasks and organisational and individual learning is not prioritised. Communication concerning professional matters seems to be mainly vertical which is in accordance with the latter statement. Coordination of tasks is reached through a standardisation of output; they are

to supply the customers with the correct parts, but how this is achieved seems to vary from worker to worker.

On the basis of these characterisations, the Spare Parts department can be described as having mechanistic features. It is not clearly mechanistic, as some of the criteria, like the degree of formalisation, do not match, but can be placed towards the mechanistic pole in a mechanistic-organic dimensional line. The few integrating roles in the department support this categorisation.

The Service department

As is the case for the Spare Parts department, the Service department has a rather flat hierarchy. Yet the personnel ratio and span of control are high, with up to 90 service engineers reporting to one supervisor. The range of tasks performed is quite wide, and decision making is more decentralised. Decisions are frequently taken by the service engineers themselves when on duty, meaning decision making is subject to horizontal power dispersion. Formalisation is high as there are written procedures “on everything”, ranging from how equipment works and how to handle safety matters, to descriptions of the work done. Long periods of training and continuous upgrading of skills through courses are required in order to perform the tasks, implying that professionalism is high. Even though the service engineers work rather independently, they frequently work in pairs, and communicate with other service engineers when in doubt about how to address a particular task. Communication can therefore be characterised as horizontal and facilitates individual and organisational learning. Arrangements to facilitate this transfer of experiences are also made by coordinators when assigning commissions, increasing the learning orientation of the department. The coordination mechanisms used is direct supervision, as the service engineers are assigned the different tasks.

In evaluating the structural characteristics of the Service department, one finds several features that point towards an organic structure; decentralisation, amount of integrating roles, and horizontal communication all indicate this. The high degree of formalisation is, however, not an organic trait and the department can not be characterised as sharing tasks to a high degree, meaning that the structure can be placed towards the organic end of the mechanistic-organic dimensional line, but not be classified as clearly organic.

The two departments clearly have several structural differences; one inclining towards the mechanistic pole of the mechanistic-organic dimensional line, the other towards the organic pole. Exhibit 7.3 positions the two departments on the mechanistic-organic dimensional line, depicting the structural differences between the two.

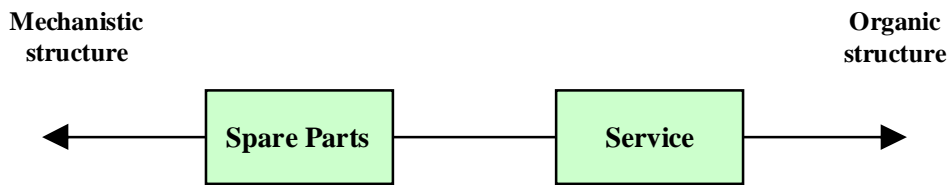


Exhibit 7.3 The departments on the mechanistic-organic dimensional line

Divisional structures

Exhibit 7.1 shows several dissimilarities between the structures in the two departments. It is, however also interesting to compare the two divisions by some of the structural dimensions. The two divisions differ, as mentioned in the results section of the thesis, in size and in number of departments. This does not surprisingly affect the personnel ratios and the span of control in both divisions, as shown in exhibit 7.4. What is interesting to point out is that it appears to have an effect on the divisional differences in degree of specialisation in the Spare Parts department. It was stated in the interviews that the employees at the Spare Parts department in Stavanger perform a wider variety of tasks than those in the Spare Parts department in Kristiansand. This is, however, not uncommon considering the lower amount of departments and people available to handle the customer enquiries, yet, as no such differences can be traced in the Service department, it accentuates a small deviation in the divisional differences experienced by the two departments. The conclusion is that the Spare Parts department appears more affected by size, than is the Service department.

Structural dimensions	Spare Parts		Service	
	Headquarters	Stavanger division	Headquarters	Stavanger division
Span of control	Medium	Low	High	Medium
Personnel ratios	Medium	Low	High	Medium
Specialisation	High	Medium	Medium	Medium

Exhibit 7.4 Structural differences; departments and divisions

No other structural dimension differences were traced between the two divisions, and it is no drastic difference in the structuring of the two divisions when only the two relevant departments are considered. The differences in structure thereby seem to follow the departments rather than the divisions.

7.2.1.2 Configurational belonging

After having evaluated the structural dimensions, one can move on to assessing these structural characteristics in the light of Mintzberg’s configurations theory. Of all the possible combinations of structural characteristic, five configurations are stated as effective, and a comparison of the theoretical perceptions and the actual structural characteristics is therefore interesting.

Considering the operations performed in the different departments and the structural categorisations made earlier, it could be expected to be differences in the configurational forms of the two departments, possibly even between the two divisions.

In assessing the design parameters of the Spare Parts department, one can discover several traits in common with Mintzberg’s ‘machine bureaucracy’. The structure in the Spare Parts department is centralised, little training is needed to do the tasks, there are few integrating roles, horizontal decentralisation is limited, and the operational core is relatively much larger than the other parts. All these characteristics coincide with the

machine bureaucracy. They also seem to be driven by the efficiency force, creating a pull towards the machine bureaucracy. Yet the low degree of formalisation and the relatively small hierarchy of middle managers found in the Spare Parts department are in conflict with the machine bureaucracy characteristics. And so is its size. Machine bureaucracies are often larger organisations. The key part of a machine bureaucracy is furthermore its technostructure, which designs and maintains the system of standardisation (Mintzberg, 1983). The characterisations of the Spare Parts department did, however, indicate little or no process standardisation and no clear technostructural roles. One can therefore only characterise the structure in the Spare Parts department as somewhat, and not completely, machine-bureaucratic.

The Service department, on the other hand, with its higher skilled labourers, integrating roles, and horizontal decentralisation, seem to be structured more like what Mintzberg characterised as 'professional organisations'. The key part of the professional organisation is the operating core and is expected to be large compared to the other parts. The support staff is also expected to be relatively large, whereas the technostructure is small and managers are few (Mintzberg, 1979). These characteristics all coincide with what was found in the Service department, supporting the categorisation. Here too, however, some deviations can be found from the configurational form described by Mintzberg. According to his configuration parameters (Mintzberg, 1983), formalisation should be low and horizontal specialisation high in a professional organisation, whereas formalisation is high and specialisation is medium in the Service department.

As the structural differences seem to follow the departments rather than the divisions, no clear classifications are found in comparing the divisions to Mintzberg's configurations.

One should bear in mind that the Stavanger division in fact is a subdivision of the Operations division, and thereby also a part of the overall structure. If one changes the level of analysis to involve the whole Operations division and compare it to the configurations, one can find several structural traits similar to those in Mintzberg's 'diversified structure'. Diversified structures are not considered complete but is rather a

partial one superimposed on a set of differently structured units (Mintzberg, 1979), precisely what seems to be the case for the Operations division.

7.2.1.3 Unit grouping

Organisations were in section 3.2.1 said to group either by function performed or by market served. It seems like both groupings are present when addressing the Operations division. The Stavanger office was established to serve the North Sea customers, whereas the headquarters were to serve the rest of the world. Yet clear grouping by functions performed were created at both locations. Time has however shown that it is mainly the Spare Parts department which divides the markets, - the service engineers are considered as 'one pool' and are mainly being sent to sites according to skills and availability and only to some extent according to divisional belonging. One can therefore state that the Operations division in general is functionally divided, and that some of these functions further are/were intended to be grouped by market served.

7.2.2 Strategy

The need for planning for companies in the oil industry appears to be relatively high as the current environment is influenced by among other factors rapid technologic development. The strategy of Aker MH in general seems to be in accordance with this, with profound strategies focusing on both innovation and efficiency in operations. The latter combination implies that the organisation as a whole can be categorised as having what Miles and Snow (1978) call an analyser strategy. Analysers are characterised as balancing efficiency and learning through combining tight cost control with flexibility and adaptability, as they try to maintain a stable business while innovating on the periphery. The Operations division, on the other hand, faces a different situation. As mentioned earlier, they are "handed" secure business for years to come by each sale of Aker MH equipment. They are not involved with innovation, but are rather concerned with supplying a stable, high quality service to current customers. Internal efficiency

becomes the focus, and the division can thereby be characterised as more of a defender. Defenders are primarily concerned with internal efficiency and producing reliable, high quality products for steady customers (Daft, 2007), and precisely high quality and effective support were by the participants of the study mentioned as Aker MH's customers' main concern in the purchasing decision, and efforts to meet these criteria were accentuated in the strategy documents.

Miles and Snow's defender strategy is often linked to Porter's 'cost leader', but the descriptions of a cost leader, which searches to offer commodities at a lower price than competitors, do not coincide well with the strategies of the after sales services in question. In fact, it is not easy to use Porter's two categories to position Aker MH and Operation's strategy as other issues than price and innovation are the more dominant. The focus of Aker MH seems to be to offer a high quality solution where high quality and effective after sales services are central. Prices and cost, though important, appear to come secondary.

When interpreting the strategy, it is also interesting to take a closer look at the idea behind establishing the Stavanger division. The original thought behind the project were by respondents said to be a compliance with the increased customer orientation in the after sales services demanded by the market. The culture and the many 'distractions' at the head office did not facilitate an organisational compliance to this demand, and the vision for the new office was an effective and customer oriented division with a higher degree of external focus. The choice of creating a subdivision at a different location was based on the need to facilitate for a different kind of behaviour and focus than what was present at the head office. This duality in behaviours and dexterities testifies to an ambidextrous approach where the organisation seeks to draw advantages from both having a small, young unit and a larger, older unit.

7.2.3 Environment

The theoretical framework states that the degree of uncertainty is central in evaluating the environmental domain of Aker MH. As mentioned earlier, environmental uncertainty can be measured on the basis of its complexity and dynamism. The speed of the technological development in Aker MH's market makes it subject to frequent and often unpredicted changes. The company needs to keep up with the market and there is some challenge in predicting the future. It is therefore natural to position Aker MH's environment towards the dynamic pole of the stable-dynamic dimension. The Operations division is, however, to a certain degree familiarised with the customer's expectations and plans for the future. Furthermore, a purchase of Aker MH equipment implies a long lasting business relation between Operations and the customer. The Operations division is thereby not subject to the same lack of predictability and instability in the market as the rest of the company is subject to, and the uncertainty degree is lower.

In separating the two after sales departments, it is believed that the Spare Parts department faces the lowest uncertainty degree of the two, as the service engineers to a higher extent must adjust their performances and skills in accordance with the technical development in the market.

The external elements considered important in assessing environmental complexity are usually customers, suppliers, and competitors. For companies in the oil industry, however, it seems natural to consider governmental regulations as well, as HSE-regulations in some parts of the world noticeable influence the operational setting, technological trends, and workflow. Complexity degree is the result of the regular influence of these external factors, and appears to be relatively high for the after sales departments despite the low degree of competition in the industry. The quantity of customers and suppliers are high, and Operations interact with them and is affected by what goes on in their world.

In addressing Daft's environmental uncertainty matrix, the former discussion characterising the environment as relatively stable and complex positions the Operations

division in a low-moderate uncertainty market. This is in accordance with the expressed uncertainty protection the division is subject to, and the interview responses characterising the environment as relatively predictable.

The degree of uncertainty does, however, appear higher when considering the resource dependency, or richness degree. Both the Spare Parts and the Service departments experience shortage in the amount of resources needed in their operations; the availability of parts from the suppliers have decreased drastically and qualified workers to serve as service engineers are scarce. Competition for both resources is high, and an issue that was frequently mentioned during the interviews. The high uncertainty regarding resource acquisition is affecting total uncertainty degree in the market. The degree of uncertainty thereby seems to be characterised as higher when using Jones' framework, than when using Daft's.

Porter's 5-forces framework was earlier described as a market attractiveness analysis in which the collective strengths of industry forces were evaluated. An evaluation of the industry based on this framework show that there is only one competitor considered to be of any significance, that industry growth and product differences are moderate, and that capital requirements and fixed costs are high. This implies moderate industry competition, and relatively low threat of new entrants and substitutes. This has also been communicated as the actual case for Aker MH. The bargaining power of the suppliers and the buyers are further described as moderate. The experienced moderate bargaining power of the buyers is in accordance with buyer profits being high, a larger amount of buyers than industry competitors, and differences in the supplied products, which are of great importance to the buyers. The expressed moderate bargaining power of suppliers is in accordance with the high amount of suppliers to industry competitors (lowering the threat), and the cost of switching suppliers being quite high in some cases for Aker MH (increasing the threat).

In addressing the individual strengths directly affecting the Operations division, the research showed that the after sales departments experience some bargaining power from suppliers but little from buyers. There is further no real competition, and the same goes

for new entrants and substitutes. Aker MH equipment requires Aker MH service engineers to repair and update with Aker MH parts, and as long as a buyer has purchased Aker MH equipment, a dependency on Operation's is created for many years to come. The oil field service and equipment industry opens for potentially high profit returns, which indicates high attractiveness and milder collective strength of the industry forces. The environmental domain does, indeed, appear attractive.

7.2.4 Size and age

The organisational life cycle described in section 3.3.4 portrayed the patterns and challenges organisations experience as they grow older and larger. The differences between the divisions when it comes to size and age are interesting to consider as they may have influenced how the divisions are structured, administrated, and managed.

The current age and size of Aker MH implies that the organisation can be expected to be found somewhere in the formalisation stage, or possibly in the beginning of the elaboration stage. The formalisation stage is characterised by among other factors formal procedures, division of labour, adding of specialities, separate innovation groups, and delegation with control. The assumption that the organisation currently is in the formalisation stage is largely supported by the general structural and managerial characteristics of the headquarters described in the interviews. The structure of the Operations division seems to be no exception; the bureaucracy degree is high, and the organisation appears large and complex. Being in the formalisation stage implies being confronted with too much red tape to be effective, innovative, and, perhaps, customer oriented. The establishment of the Stavanger division can thereby be interpreted as an attempt to deal with the rigidity problem of the headquarters constraining the ability to pursue a high focus on customers. It seems the organisation handled the need of customer focus through creating a smaller unit with less bureaucracy and formalised procedures. The Stavanger division, though influenced largely by the departmental structures of the Service and the Spare Parts department, still holds structural characteristics that can be found in organisations in the collaboration stage.

7.2.5 Technology

The production processes, or technologies, in an organisation were in the theory chapter linked to the structure by Perrow and Thompson. The theoreticians state that the technological degree of complexity, analysability and variety, and task interdependence shapes the structural design, and that certain characteristics are better suited the different classifications than others.

The theoretical framework on technology is based on manufacturing firms and may seem inappropriate as the after sales departments in question provide what is called ‘a service’. The work procedures have, however, some characteristics similar to manufacturing processes, such as tasks being preformed in sequences. The proposed theory on technology can therefore shed some light on the structuring and management of these services.

7.2.5.1 Perrow

The tasks performed in the Spare Parts department are characterised by relatively low task variety and analysability is relatively high. The tasks are relatively repetitive and the workers do more or less the same kind of tasks. These tasks performed can further be sequenced and few exceptions are encountered in the work process. All this indicates that the department has what Perrow described as ‘routine technologies’.

The service engineers, on the other hand, encounter more variation in the tasks performed both as the problems that need addressing might be different and as the equipment itself may vary from site to site. The variety of tasks can therefore be characterised as high. The work done during repairs can further be characterised as quite analysable, as it can be broken down to mechanical steps and follows established formulas, procedures, and techniques. High analysability and high variety of tasks implies that the Service department has, quite appropriately, what Perrow defines as engineering technologies.

7.2.5.2 Thompson

In addressing the degree of task interdependence in the organisation, a link can be spotted between the two after sales departments. Aker MH equipment requires correctly procured and installed parts in order for the warranty to be applicable, implying that in repairing and updating equipment service engineers are likely to use parts delivered by the Spare Parts department. There seems to be what Thompson characterised as a sequential interdependence.

7.2.6 Culture

Corporate culture was earlier described as a set of values that form behaviour and task performance. In addressing common features in the Operations division, the participants pointed at the code of conduct, Uptime 2010. The general opinion was that these statements coincide with the values in the division to a high degree. The stated code of conduct was described as something they accepted, agreed upon, and supported.

In spite of this were several cultural differences between the divisions accentuated in the interviews. It appears that dissimilarities in location, size and age, and divisional purpose have created a subculture in the Stavanger office that differentiates from that of the head office. The culture in Stavanger is described as more customer oriented than what is the case at the head office. For the Spare Parts department's sake, working differently than the general procedures calls for and the computer system prepares for in order to accommodate the wishes of the customers, appears not only to be usual, but rather the norm. The Stavanger culture thereby shows more external strategic focus and ambition to serve customer than what can be traced in the headquarters, which seem to support a more internal focus and methodical approaches to doing business. The two different divisions can thereby be categorised as having a mission culture (the Stavanger office) and a bureaucratic culture (the headquarters).

7.3 Degree of fit, and possible changes to increase it

The latter section classified the structures and the contextual factors influencing effectiveness. This section seeks to address these findings in the light of what is being presented as the optimal solutions in the theoretical framework. Real situations and settings are rarely as black or white as the theoretical ideas seem to presume, and normally influenced by far more factors than those included in the theories. A comparison of theory and empiricism may nevertheless point out actual hindrances to effectiveness in the after sales departments.

7.3.1 Structure

The two departments seem relatively well structured for the tasks they perform. The Spare Parts department, with its routine characterised work, has several mechanistic/machine bureaucratic traits, and the Service department, which focuses slightly more on skills and learning, has more organic/professional organisation traits. Some aspects may nevertheless be emphasised.

In addressing the work processes in the Spare Parts department, inconsistencies were found in how tasks were executed, especially so between the two divisions. The machine bureaucracy calls for standardisation of procedures, and one would expect the department to have a higher degree of this type of coordination mechanism. Standardisation of procedures offers the opportunity to set and specify a common standard of how the customers are to be handled and create a similarity in the services provided, bringing about a consistent image of the company. The department may further feel more like one unit even though it is spread over different locations, and overall performance might be increased.

Standardisation of work procedures goes hand in hand with behaviour formalisation, as the procedures to be followed would have to be written down, indicating that

formalisation accordingly could be increased in the search for organisational effectiveness.

The degree of formalisation in the Service department was also quite the opposite of what is defined as optimal for a professional organisation. There is, however, no reason to address this, as the nature of the industry demands a high degree of control with actions taken, implying that procedures are to be followed in performing the different tasks and that what is being done, and how, is documented. Documentation of what is being done in earlier, connected operations further facilitates an effective handling of the current operation.

Setting up a division in a different geographical region in order to serve the needs of the customers is often considered as organisations grow (Jones, 1998). This is precisely what has been done in the case of Aker MH, and the establishment of the Stavanger unit turned out to be a smart move not only considering increasing the customer focus, but also considering the fact that it facilitates the employment of additional service engineers. Geographical spread can, however, cause several challenges. Several difficulties, involving issues such as cooperation and common direction across divisions, were mentioned in the interviews as a result of being positioned at different locations. Jones (1998) stresses that organisations with more than one location must develop a well functioning information system that can balance the need to centralise decision-making authority with the need to decentralise authority to regional operations. The difficulties experienced would probably decrease if further attention is given to improving the current information system. Especially so within the Spare Parts department, as the information flow between the divisions was described as more frequent and better functioning in the Service department than in the Spare Parts department.

7.3.2 Strategy

Miles and Snow assigned a set of organisational characteristics to each strategy in order to have an effective organisation. The defender strategy is characterised as best suited for a structure focusing on efficiency, and central control. In comparing the after sales department to these criteria, some deviations were found.

Category	Org characteristics expected theoretically	Reality Service	Reality Spare Parts
Defender	- efficiency oriented - centralised authority - close supervision	- some - not really - not really	- some - some - some

Exhibit 7.5 Ideal organisational characteristics of a Defender compared to reality in the after sales departments
 Source: *Understanding the Theory and Design of Organizations* by Daft, page 168, and research material.

One can get the impression that the after sales department are not clear about their strategic positioning. As can be seen in the table above, they do not comply with a full extent to the structural settings required in order to be effective as a Defender. Based on the expressed concern about lack of effectiveness, one could, on the basis of theory, conclude that they probably could benefit from being slightly more consistent, instead of being a little bit of everything. Whether it is a deliberate choice to follow the inconsistent strategy or not has however not been researched. Factors not known to the candidate may influence the strategic choice, justifying the current strategy. An awareness of the inconsistency is nevertheless useful when trying to increase effectiveness.

7.3.3 Environment

Environment has earlier been described as measured by degree of uncertainty and degree of attractiveness. The former is concerned with having the appropriate structure, and the latter with the appropriate strategy. Both issues are in the following discussed with reference to the after sales departments.

Exhibit 7.6 compares the reality of the two after sales departments to the organisational characteristics described by Daft as the appropriate ones for a complex and stable environment. The comparison shows that both structures have several characteristics in common with the theoretical expectations. It also shows that the Spare Parts department is more aligned than the Service department. This does not, however, necessarily imply that effectiveness is lower in the Service department. It has earlier been argued that the degree of uncertainty is higher for the Service department, implying different requirements on the departmental structure.

Category	Organisational characteristics expected theoretically	Reality Spare Parts	Reality Service
Complex and stable <i>(low-moderate uncertainty)</i>	- Mechanistic structure	- Yes	- No
	- Centralised	- Yes	- No
	- Some boundary spanning	- Yes	- Yes
	- Few integrating roles	- Yes	- Yes
	- Some planning	- Yes	- Yes
	- Moderate-speed response	- Low	- Yes

Exhibit 7.6 Environmental uncertainty, Daft’s theoretical characteristics, and reality at Operations
 Source: *Understanding the Theory and Design of Organizations* by Daft, page 67, and research material

It should be borne in mind that the positioning of the Operations division into the framework is somewhat inexact and that the two-by-two model not captures the nuances of the categories experienced in the real world. A full restructuring to create a complete fit to the structure described as the most appropriate in the theory may therefore not be ideal.

The market was furthermore characterised as attractive. This does not, however, imply that attention should not be given to addressing the forces that influence the operations. The underlying causes of the forces and the company's strengths and weaknesses should be analysed along with potential activities that might defend the company against these forces, or even influence them in their own favour. In the case of Aker MH, it appears that higher focus should be directed to competitors, suppliers, and buyers as these are considered the most influential. The interviews did, however, indicate that the forces were given little or no attention in the after sales departments. They are, however, real threats to Aker MH as a whole, and should not be ignored. Success is linked to the overall attractiveness of Aker MH as a supplier, and the quality of the after sales services is a part of this.

7.3.4 Life cycle stages

The divisional differences when it comes to life cycle stages can be said to facilitate the aspired dual dexterity mentioned earlier. The strengths of an older and larger organisation, such as economies of scale and scope, abundance of resources, and a well established reputation, can potentially be combined with the strengths of a younger and smaller unit, such as responsiveness, simplicity, and flexibility. Such a big-company/small-company hybrid does, however, involve potentially facing two crises – both the need to deal with too much tape (headquarters) and the need to delegate power – in stead of facing only one. The organisation thereby faces the possibilities that, if the crises are actually dealt with, one crisis is prioritised over the other and that the patterns

and solutions fitted for one division wrongly are imposed on the other. The divisional needs must thereby be acknowledged. However, the crisis expected by theory to present itself at the Stavanger office is related to growth and the appurtenant need of leadership, which, due to the nature of how the Service department is managed, probably will be less of a challenge than described in the theory. Some management is also already in place, further implying that the division is dealing with the crisis.

It should also be noted that the potential advantages of the smaller unit not is guaranteed. Transfer of structure and culture from the larger and older unit can impede the small unit strengths. If the Operations division wish the Stavanger division to contribute with small unit strengths, it must be allowed and encouraged to have small unit characteristics.

7.3.5 Technology

The evaluation of the departmental technologies in Perrow's framework lead to a classification placing the two after sales departments in different categories: routine (the Spare Parts department), and engineering (the Service department). Perrow concluded that there is a link between type of technology and the organisational structure, and listed a set of characteristics the structural design should comply with so that technological requirements can be met. The comparisons of these characteristics to the results from the research are listed in exhibits 7.7 and 7.8.

Structural characteristics	Nature of technology <i>Routine tasks</i>	Reality Spare Parts department
Span of control	Wide span	Narrow span
Formalisation	High	Low
Decision-making authority	High centralisation	Medium centralisation
Staff qualifications	Little training or experience	Little formal training
Communication	Vertical and written	Vertical, oral
Overall structure	Mechanistic	Mostly mechanistic

Exhibit 7.7 Routine tasks and organisational design

Source: *Understanding Theory and Design of Organizations* by Daft, page 419, and research results

The comparison of the described structure of the Spare Parts departments to the characteristics that Perrow considered appropriate for routine technology show several dissimilarities. Two of these, the degree of span of control and formalisation, show severe differences, and are characteristic for structures found at the other end of the routine–non-routine line. The fact that they have a narrow span of control when a wide span is to be expected, is however, not necessarily negative. The personnel ratio seems to be as it is due to the amount of employees needed to meet current demand, rather than being the result of other factors. The amount of employees in the operational core in the Spare Parts department could probably be increased without complications, and probably will, if the market demands it. The degree of formalisation, on the other hand, could with advantage be considered. Formalisation help standardise operations, which could help create a more uniform response to customers across divisions and thereby improve the company image. The slight distinction in degree of centralisation also appears to be subject of operational matters; the operative core needs to be free to make some decisions in order to effectively execute their tasks.

The comparison of the structure in the Service department to the characteristics of the engineering technology shows some dissimilarity as well, yet not as much as in the latter comparison.

Structural characteristics	Nature of technology Engineering	Reality Service department
Span of control	Moderate span	Moderate-wide span
Formalisation	Low	High
Decision-making authority	Decentralised	Decentralised
Staff qualifications	Training plus experience	Formal training
Communication	Horizontal, meetings	Horizontal
Overall structure	Mostly organic	Mostly organic

Exhibit 7.8 Non-routine tasks and organisational design

Source: *Understanding Theory and Design of Organizations* by Daft, page 419, and research results

As with the other comparison, a major difference can be found when comparing the degrees of formalisation. However, lowering the degree of formalisation in the Service department seems erroneous as the work should be standardised in accordance with company standards and safety regulations.

In considering Thompson’s framework, a sequential interdependence was found, implying that the demands on horizontal communication would be medium, coordination required would be plans, schedules, and feedback, and that there would be medium priority for locating units together. The data collected in the research process of this project do not lead to viable conclusions about the extent to which this is the actual case in the Operations division of Aker MH. A presumption is, however, that there is some degree of communication between the departments, either between employees themselves or through the customer as an intermediary link in ordering the parts needed. There is likely to be some feedback as well, implying that the departments comply with two of the three fitted mechanisms described by Thompson.

The last criterion, location priorities, seems less important due to the nature of the business of supplying parts from a storeroom to a service engineer on a site, and is therefore considered unnecessary to address.

7.3.6 Culture

In order to be effective, an organisation needs a corporate culture that reinforces strategy and structural design required by its environment (Daft, 2007). The competitive environment in which the after sales department operate, seem to require stability over flexibility as innovation is of less importance and direct competitive moves and counter moves are limited. Combining this categorisation with the earlier argued proposition that the after sales departments would benefit from having more of an external strategic focus, leads to classifying the mission culture as the appropriate one. In recalling that mission culture traits were found in the Stavanger division but not at the headquarters, one could conclude that the culture at the Stavanger division is more appropriate, and that the company probably could benefit from altering the focus of the culture at the head office from being more inwards directed to be more outwards directed.

Aligning the two cultures could probably also reduce existing and potential conflicts between the units, and would therefore be beneficial to overall performance and effectiveness. Uniformity can be sought through standardisation of norms, which has currently been attempted through the code of conduct Uptime 2010. This effort should therefore be acknowledged as a step in the right direction.

7.4 Perspectives

The categorisations and comparisons above show several differences between the departments and between the divisions studied. Such differences are in several cases appropriate, considering the nature of the business performed. The differences between the actual structural settings and the optimal solutions portrayed by the theoretical framework do, however, indicate that effectiveness probably is affected negatively, at

least to some extent. The impact may not be felt, or matter for that sake, to a high degree during these prosperous times. Lack of fit can be “allowed” in such a situation, but can be fatal if times change. The notion of structural and contextual fit, and the current departmental divergences from the optimal solutions in the theoretical framework should therefore be borne in mind, and addressed if the company feels the need of increasing its organisational effectiveness. One has to recall, however, that the factors, both internal and external, alter over time, and that the appropriate fit changes accordingly.

8 Conclusions

This thesis has been based on a theoretical framework composed of a set of generally accepted theories concerning organisational structures, contingency factors, and the notion of fit. The theoretical framework was then used as a basis for interpreting the empirical data gathered through research interviews of participants in the two after sales department. Several interesting results were found, and will in the following be used in an attempt to answer the research question of the thesis. Limitations of the project and possible projects for further research are addressed in the end.

8.1 Answering the research questions

The paramount research question of this thesis is as follows:

“How are organisational factors related to effectiveness in the after sales departments in Aker MH?”

It is hard to create a complete picture of the effectiveness degree of the after sales departments in Aker MH when financial data not has been used and no industry comparisons were available. Former studies concerned with the issue of effectiveness in organisations as well as the results and interpretations of data for this thesis do, however, indicate that effectiveness in the after sales departments is lower than what can be achieved, and are indeed affected by organisational factors. The degree of effectiveness seems to vary between the departments and between the divisions, and organisational effectiveness is further measured by different variables. Furthermore, the differences in the participants’ answers show that there are disparities in the personal perceptions of the degree of the factors affecting effectiveness. This in it self do probably affect organisational effectiveness.

The sub questions:

“What characterises the contextual settings of the after sales departments?”

The environmental domain in which the after sales departments operate was characterised as involving a low-moderate uncertainty degree and the attractiveness of the industry was considered to be high despite the scarcity of important resources. The strategy demonstrated a rather internal and efficiency oriented focus, and was therefore classified as containing “defender” features. The Stavanger division demonstrated furthermore an ambidextrous approach, where strengths of both a large and well established unit and a smaller, more flexible unit were sought. The technologies were different in the two departments and characterised as “routine technology” in the Spare Parts department and “engineering technology” in the Service department. Furthermore, some sequential interdependence was found. The differences in divisional culture called attention to a subculture in Stavanger office, which was more a customer oriented and bore mission culture characteristics in contrast to the more bureaucratic culture that appeared present at the headquarters.

“How are the divisions and the departments currently structured?”

The departments proved to not only perform different kinds of tasks, but also to have several structural differences. The structural characteristics found in the Spare Parts department has been characterised as mainly mechanistic, and similarities have been drawn to the configuration “machine bureaucracy”. The Service department, on the other hand, has more of an organic structure, and bears resemblances to a “professional organisation”. The differences in divisional structures were less prominent, indicating that structural characteristics depend on departmental rather than divisional belonging.

“To what degree do the structural and contextual factors fit?”

The general conclusion was that the departmental structures were relatively well fitted for the tasks performed. The degree of formalisation did, however, show great divergence from the theoretical expectations in both departments, but was only considered to be of

importance for the Spare Parts department. Some divergence from the theoretical framework was also found when considering the contextual factors. Both departmental structures showed little alignment with the expected characteristics of the defender strategy, indicating uncertainty about the strategic positioning. Deviations were also traced when the expectations according to the nature of departmental technology were addressed. Again was the degree of formalisation an issue, and again did this appear to be of more consequence for the Spare Parts department than for the Service department. They did, however, comply quite well with the expectations related to the environmental domain, especially so the Spare Parts department.

The culture portrayed in the Stavanger division appeared more suitable for the desired strategic focus of the after sales services and the needs of the environment.

“What measures can be taken in the search to optimise the after sales service?”

The theoretical framework alleges that effectiveness is achieved through fit, and that certain combinations of structural characteristics are the better suited for the contextual classifications. Some alignment of the departmental structures in the after sales departments to the structures suggested by the theoretical framework could probably increase effectiveness in the after sales service. Areas such as degree of formalisation, especially in the Spare Parts department, more external focus, and further strengthening and manoeuvring of the corporate culture could have a positive impact on performance. The Spare Parts department could further probably benefit from standardising the processes to appear more uniformly.

The theoretical framework does, however, simplify reality, and all factors affecting effectiveness are not included. Some alignments would further probably make more of a difference than others. A complete restructuring to fully comply is therefore not be considered appropriate.

“What part does the Stavanger division play in the overall structure of Aker MH?”

The Stavanger division enables the after sales services to follow an ambidextrous approach, and is thereby a valuable contribution. The divisional differences when it comes to size and culture seem to facilitate the aspired dual dexterity in ambidextrous organisations, opening up for transference of valuable ways of performing the business. It has further proved to facilitate the acquisition of service engineers, which constitute a scarce resource greatly needed in order to comply with the growing demand for operational support.

It is, however, also a source of a set of challenges that should not be ignored. Geographically separated units imply that efforts must be made by both parties in order for cooperation to work well.

8.2 Limitations of the project

The foreknowledge about the oil industry and the business affairs of Aker MH was limited when the interview guide and research questions of the thesis were formulated. The understanding was basically developed during the interviews, resulting in a relatively broad focus during the first couple of months of the research. Several areas, such as financial aspects, have nevertheless not been investigated due to limitations in time and resources, and a complete understanding of the case company and its effectiveness aspects has not been gained. It is believed that some estimates of financial effectiveness or comparisons of effectiveness degrees of the different companies in the industry would have facilitated the evaluation of the actual influence by the factors.

The amount of participants is further rather low, especially considering the amount of representatives of the Stavanger division. The degree of representativity in the answers and the candidate's knowledge may therefore not be as high and accurate as desired.

The theoretical framework used is generally simplifying reality through black and white-perspectives and frequent use of two-by-two models. Some nuances may therefore not be present, possibly making some of the conclusions somewhat inaccurate.

Hope is nevertheless that the thesis, with its findings, interpretations, and discussion has raised the consciousness of organisational aspects in a company such as Aker MH, enlightening critical areas that should be considered in search of effectiveness.

8.3 Suggestions for further research

Several areas would be interesting to assess to develop a deeper understanding of the different effectiveness impacts in the company. One such factor is the degree of organisational learning, where the need for communication across departments, feedback, and evaluations could be considered. Another area that stands out is the importance of customer orientation for a company such as Aker MH. One could assess to what degree this is necessary, and how it best can be done.

Another angle to broaden the understanding of the effectiveness issue would be a comparison between the structural settings of Aker MH and their main competitor National Oilwell Varco. One could use a similar approach to that of this thesis.

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10 Appendices

10.1 The interview guide (in Norwegian)

Introduksjon

1. Hva er din stilling i AKMH
2. Hvilken bakgrunn har du (utdanning)?
3. Hvilken enhet/avdeling tilhører du?
4. Hvor lenge har du jobbet i AKMH?
5. Hvilke ansvarsområder har du?
6. Hvilke aktiviteter er du engasjert i?
7. Er det andre som gjør tilsvarende arbeid i din avdeling eller ellers i AKMH?
8. Har du tidligere hatt andre stillinger i AKMH? Hvilke?

Struktur

9. Hva er den grunnleggende funksjonen til AKMH?
10. Hva er din generelle oppfatning av AKMH som organisasjon?
11. Hva anser du som deres styrker?
12. Hva anser du som deres svakheter?
13. Hvordan vil du beskrive kulturen i Operations?
14. Hva mener du er de viktigste restriktive faktorer som påvirker virksomheten?
15. I hvilken grad oppfatter du AKMH som en flat organisasjon?
16. I hvilken grad oppfatter du AKMH for å være toppstyrt og byråkratisk?
17. I hvilken grad standardiseres arbeidsoppgavene i din avdeling?
18. Hvilken type standardisering? (ferdigheter, output, arbeidsoppgaver, normer)
19. Hvor mye av prosedyrer, jobbeskrivelser, regler og policy er skriftlig?
20. Hvor spesialiserte er de ulike i din avdeling? (antall ulike oppgaver som gjøres)
21. Hvor mye utdanning/opplæring må til for å utføre de oppg som gjøres i din avdeling?
22. Hvor stor grad av beslutningstaking har de ansatte i din avdeling?
23. Hvor mye kommunikasjon er det mellom dine ansatte og mellom avdelingene?
24. Støtter strukturen opp om de oppgaver som utføres?
25. Åpner strukturen for samarbeid mellom enheter/avdelinger? Er det behov?
26. Hvordan kunne strukturen vært bedre tilrettelagt?

Stavanger

27. I hvilken grad gjenspeiles Kristiansands strukturtrekk i Stavangeravdelingen?
28. Hvilken rolle og hvilket formål har Stavangeravdelingen?
29. Hvordan vil du beskrive Stavangeravdelingen sin betydning & bidrag for AKMH?
30. Hva er Stavangeravdelingen viktigste bidrag?
31. Hva skiller Stav fra Kristiansand?
32. Hvordan integreres Stavangeravdelingens bidrag? (Egen koordineringsansvarlig?)

33. Kan du fortelle om utviklingen i Stavangeravdelingen?
34. Hvilke funksjoner(støtte)/oppgaver i Kristiansand finnes ikke i Stavangeravdelingen?
35. Hvilke utfordringer møter Stavangeravdelingen på grunnlag av ulik lokasjon?

Strategi

36. Hva slags strategi og mål har Stavangeravdelingen?
37. Hvordan/hva er målene i Operations generelt?
38. Hvordan er målene satt og strategien formulert?
39. Har den strategien og de mål du forholder deg til blitt endret siden oppstart?
40. Er du selv delaktig i målsettingsprosessen? Hvis ja, på hvilken måte?
41. I hvilken grad påvirker/former de arbeidet ditt?
42. I hvilken grad mener du prosjekter og mål m prosjekter blir kommunisert til ditt nivå?
43. Hvordan opplever du at det tilrettelegges for at disse målene skal nås?
44. I hvilken grad mener du målene og strategien stemmer overens med
 - a. organisasjonsstrukturen?
 - b. markedet?
 - c. teknologien?
 - d. kompetansen?
45. Hva kunne eventuelt vært bedre tilrettelagt?

Marked/miljø

46. Hvilke markeder betjener dere i dag?
47. Hva er grunnen til markedoppdelingen?
48. Kan du skissere markedet dere befinner dere i og trendene de siste årene?
49. Hvilke hovedstyrker/-svakheter mener du dere har i forhold til konkurrenter?
50. Hvilke muligheter?
51. Hvilke trusler?
52. Hva i omgivelsene har størst påvirkningskraft på drift og suksess?
53. Hvor avhengige er dere av informasjon fra markedet?
54. Hvordan skaffer dere denne informasjonen?
55. Hvor høy grad av endring er det i de ulike markedene?
56. Hvor høy grad av usikkerhet vil du si det er i markedene?
57. I hvilken grad vil du si du/avd har uforutsette arbeidsoppgaver?
58. Hva gjør at du/dere får uforutsette oppgaver?
59. I hvilken grad er dere opptatt av utviklingen i markedet?
60. I hvilken grad påvirker reguleringer og lovpålagte standarder/restriksjoner?
61. I hvilken grad fokuserer dere på:
 - a. Effektivitet vs. fleksibilitet
 - b. Lave kostnader/priser vs. kvalitet
 - c. Individuell og organisatorisk læring vs. standardisering
 - d. Forskning og utvikling av produkter
62. Hvis vi ser på konkurrenten(e) (NOV) til AKMH;
 - a. Hvilke områder konkurreres det på?
 - b. Hvilke måter konkurreres det på?

- c. Hva er deres spesialiseringer?
 - d. Hvor diversifiserte er de (i forhold til dere)?
 - e. Hva skiller dere fra konkurrentene?
 - f. Hvordan er mulighetene for nykommere?
63. Dersom vi ser nærmere på leverandørene deres, hvordan er det med
- a. Antall?
 - b. Størrelse?
 - c. Hvor mange kunne levert det de leverer?
 - d. Hvor lett er det å få tak i det dere trenger?
 - e. Hvor stor unikhhet er det i det de leverer?
 - f. Hvor ofte bytter dere leverandører?
 - g. Hvor mange leverer de til?
64. Dersom vi ser på kundene deres, hvordan vil du beskrive dem?
- a. Hvem er de?
 - b. Antall?
 - c. Størrelse?
 - d. Grad av samarbeid/kundetilpassning av leveranser/tjenester?
 - e. Hvor stor del av den totale kundemasse har dere?
 - f. Bransjens grad av kundelojalitet? (hvor ofte skifter kundene tilbyder?)
 - g. Hvor avhengige er kundene av serviceingeniører til å installere produktene?
 - h. Hvilken grad av unikhhet har produktene dere selger?
65. Mener du det finnes en naturlig inndeling av markeder eller kunder?

Endring

- 66. Ser du behov for endring i dag? Hvis ja, hva slags?
- 67. Hva vil du beskrive som de mest endringsfremmende faktorene hos dere?
- 68. Har du tidligere opplevd endring av organisasjonsstrukturen?
- 69. Hva slags endringer var dette? (type, størrelse, når, hvordan organisert)
- 70. Hvordan opplevde du endringsprosessen?
- 71. Hvor ofte opplever du at dere gjennomfører mindre endringstiltak?
- 72. Og hvor ofte større endringstiltak?
- 73. Hvem initierer disse?
- 74. Hvem utarbeider planene? (på hvilke(t) nivå)
- 75. Hvordan utarbeides de? (team bestående av?)
- 76. Hvem gjennomfører endringene?
- 77. Hvordan gjennomføres de?
- 78. Hvordan reagerer de ansatte? Reagerer noen grupper annerledes enn andre?
- 79. Har dere kontakt med design/utviklingsavdelingen?
- 80. Hvordan fanges endringer i miljøet opp? (Buffer rolle)

Samarbeid

- 81. Hvem/hvilke avdelinger jobber du opp mot/sammen med i AKMH?
- 82. Hvordan vil du beskrive samarbeidet?
- 83. Hva innebærer dette samarbeidet?
- 84. Hvordan koordineres samarbeidet?

85. Hvordan opplever du informasjonsflyten mellom enhetene/avdelingene?
86. Hvordan og i hvilken grad preges du av samarbeidet?
87. Opplever du dette samarbeidet som optimalt? Hva kunne med fordel endres?

Ledelse

88. Hvilke instanser rapporterer du til?
89. Hvordan opplever du denne rapporteringsmekanismen?
90. Dersom du har lederansvar, hvor mange rapporterer til deg? (hva ville vært max?)
91. Hvor avhengige er dine ansatte av hverandre/deg?
92. Hvor mye tid bruker du på rapportering til deg?
93. Hvordan foregår denne rapporteringen?
94. Hvordan fungerer dette?
95. Har du i noen tilfeller opplevd uklarheter i forhold til lederansvar?
96. Hvordan avgjøres hvilke oppgaver som skal utføres?

Effektivitet

97. I hvilken grad mener du oppgaver generelt utføres på en effektiv/tilfredsstillende måte?
98. Hvilke oppgaver gjennomføres ikke på optimal måte? Hva hindrer dette?
99. Hvordan, og i hvilken grad fokuseres det på effektivisering på arbeidsplassen?
100. Hvor mener du man burde søke å øke effektiviseringen?
101. Noen tanker om hva som kunne øke effektiviseringen?

Evaluerings

102. Hvordan evalueres utført arbeid?
103. Hva evalueres, prosjekter eller organisasjon?
104. Hva gjøres med disse evalueringene?
105. I hvilken grad opplever du at det settes inn tiltak for å etterkomme evalueringer?

Beslutningstaking

106. Hvordan opplever du at den generelle beslutningstakingen fungerer?
107. Hvordan opplever du beslutningstaking i din avdeling (Stav/Kristiansand)?
108. Opplever du at det er få eller mange som deltar i beslutningstakingen?
109. Hvordan fungerer tilbakemeldingen på beslutningstaking?
110. Hvilke beslutninger tas i Kristiansand og hvilke i Stavanger?
111. Hvordan opplever du at beslutninger formidles?

Avrundning

112. Hva mener du er de største utfordringene
AKMH/Operations/Stavangeravdelingen står overfor?
113. Har du noen tanker om hvordan dette kan håndteres?
114. Har du noe annet å tilføye til slutt?

10.2 Code of conduct

