

UNIVERSITY OF TWENTE.

Administrative efficiency in theory and practice at PT. Sarandi

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Management Summary

This report is the result of my research at PT. Sarandi Karya Nugraha, a medical equipment manufacturer in Indonesia.

Sarandi indicated that they have an interest in increasing administrative efficiency. For example the company was keen to implement an e-HRM system to improve their efficiency. It is important to understand the determinants of administrative efficiency in order to be able to systematically improve or to evaluate the effect of improvement attempts. A research of the literature learned that dimensions of organizational structure have a direct impact on administrative efficiency. Although many studies relating single dimensions of organizational structure to administrative efficiency are reported (e.g. standardization (Verlag, 2000), formalization (Payne & Pheysey, 1971) and specialization (Argyris, 1957)), studies that cover the relation of multiple dimensions of organizational structure to administrative efficiency are lacking.

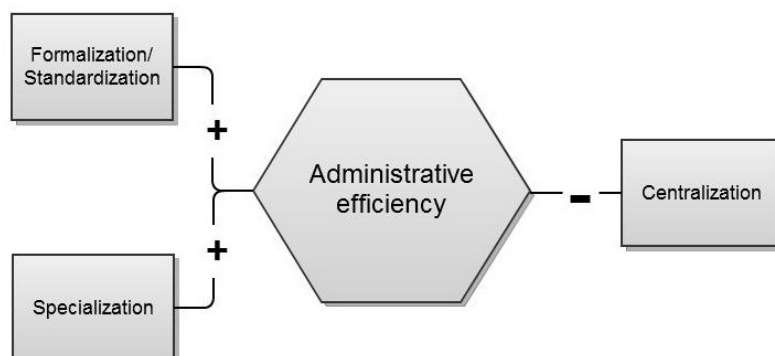
Therefore the following research questions are formulated:

“To what extent and in what way does organizational structure contribute to administrative efficiency?” and to answer Sarandi’s initial question ***“How can Sarandi increase its administrative efficiency by changing the organizational structure?”***

To give an answer to the first research question, the dimensions of organizational structure as defined by Pugh et al. (1963) are used. The six dimensions used are: standardization, formalization, specialization, centralization, configuration and flexibility. Of these six dimensions, standardization and formalization were used together as one dimension because of the great similarities between them. The dimension configuration was dropped from the model because in the literature there was no connection with administrative efficiency to be found. Flexibility was omitted from the model because there was no connection to administrative efficiency to be found in the literature for this dimension as well. This leaves three dimensions in the final model.

“To what extent and in what way does organizational structure contribute to administrative efficiency?”

Research of empirical and theoretical studies show that the dimensions specialization and standardization/formalization contribute in a positive way to administrative efficiency. This means that the higher the specialization or the higher the standardization/formalization, the higher the administrative efficiency. The dimension centralization is the opposite, centralization contributes in a negative way to administrative efficiency. This means that a lower centralization (or higher decentralization) contributes in a positive manner to administrative efficiency. An overview of the model can be seen in the picture below.



From theory to practice: an instrument and its application

To get an overview of the current situation at Sarandi the company is assessed on basis of the three dimensions of organizational structure from the theoretical framework. For this assessment a list with scaling items was developed to measure the current situation in Sarandi, called the “rating instrument”. In the literature another way of assessing the dimensions of organizational structure exists, in the form of a scaling instrument consisting of an item scoring list by Pugh et al. (1968), called “scales”. This instrument is a very extensive list of around 170 items which need to be scored, compared to the mere 16 items of the rating instrument developed in this thesis. To check whether the rating instrument developed in this thesis provides accurate predictions both the rating instrument and the scales were used as a measure of the dimensions of organizational structure in Sarandi and the results were compared.

The development of the rating instrument to assess the dimensions of organizational structure has paid off. The existing scales by Pugh et al. (1968) measure the dimensions in an absolute way. The scales focus on the presence of pre-specified characteristics per dimension. The rating instrument works in a more dynamic way, by focusing on proportions (of e.g. the number of specialized employees as a percentage of total employees). Furthermore has the rating instrument proven to be a quicker way to assess the dimensions of organizational structure.

The theoretical framework almost exactly predicted the level of administrative efficiency in the company by using the three dimensions of organizational structure as input. This leads to the conclusion that the stated contributions of the dimensions of organizational structure to administrative efficiency are correct.

The dimensions standardization and formalization were shown to be very similar to each other and they were treated as one dimension in this thesis. As said, the dimensions configuration and flexibility were shown to have no relation with administrative efficiency and they are difficult to observe. The implication is that future research should not focus on these two dimensions and concentrate the efforts on the remaining three dimensions of organizational structure.

The current research is based on literature from western, industrialized countries. While the theoretical framework seemed to accurately predict the administrative efficiency at a company in East-Asia, more research is needed whether adaptations for different countries and cultures are necessary.

“How can Sarandi increase its administrative efficiency by changing the organizational structure?”

Sarandi is recommended to increase its formalization/standardization by creating formalized task descriptions, formalize the skill sets of the employees, creating a more formalized system for performance appraisal and make the production process more standardized.

Sarandi might want to increase the specialization by creating a more formalized and standardized production process, making tasks more clearly defined. When the tasks are clearly defined this makes it possible to create jobs that are more specialized and narrowed down and thus increase the specialization.

Centralization is recommended to be decreased at Sarandi. Sarandi can do this by involving employees more in the making of decisions and future plans for the company.

Preface

This document is my bachelor thesis and is the result of my internship at PT. Sarandi Karya Nugraha in Sukabumi, Indonesia. This bachelor thesis serves as the final part of my bachelor's program in Industrial Engineering and Management at the University of Twente, the Netherlands.

My stay in Indonesia and Sarandi in special was an experience to be remembered for the rest of my life. I have met so many nice people, seen so many nice things and experienced many completely new things. Also on a study related point of view have I seen many interesting things, it was very insightful to see how a company functions in a completely different part of the world with a completely different culture, climate and mindset.

I want to give special thanks to Mr. Isep Gojali, Mr. Arief Rachman, Mrs. Yeni Marlina Mustikadi, Mr. Ru'yat and Mrs. Ratih Aishitere for doing everything they could to help me with my research and showing me around the country during the weekends.

Finally I would like to thank Mrs. Bondarouk and Mr. Stienstra for supporting me with their feedback which helped to get this thesis to its current state.

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Chapter 1 Introduction

This chapter introduces the reader to the research conducted at PT. Sarandi Karya Nugraha, an Indonesian small and medium enterprise (SME) which produces hospital equipment.

1.1 Indonesia

Indonesia, with Jakarta as capital, is located in South-East Asia. With a population of more than 240 million people (July 2012 estimate) it is the 4th largest country in the world (The World Bank, 2012). Most of the inhabitants are Muslim (86 %), which makes that the country has the largest Muslim population of the world. The country is fifty times the size of The Netherlands and consists of more than 17.000 islands of which 6.000 are inhabited. The official language is Bahasa Indonesia.

1.2 PT. Sarandi Karya Nugraha

PT. Sarandi Karya Nugraha, hereafter referred to as Sarandi, was established as a company in the hospital industry in 1997. It was founded by the current managing director in the city of Sukabumi. It started with only two employees and a capital of only 50 US Dollars. From this time the company has steadily been growing to the current size of more than 200 employees. The factory of Sarandi, which produces the hospital equipment, is located in Sukabumi, 150 kilometers south of Jakarta and has a total production area of 7000 square meters. The marketing office is located in Jakarta.

The core business of Sarandi is the manufacturing of hospital and Intensive Care Unit beds, gynecology chairs, dentist chairs and bedside cabinets. In the factory there is only one production line that all products go through. Every product follows the same steps: cutting, machining, welding, finishing, chemical treatment, painting, assembling and packaging. Not all parts are made by Sarandi, some parts are bought from suppliers and subcontractors. For some parts this is the case because Sarandi does not have the capability to produce the parts themselves, for example they have a subcontractor for all the bending of material. Another reason that parts are sourced externally is because Sarandi sometimes lacks capacity.

Sarandi has acquired many certifications over the years, for example the ISO 9001:2008 and ISO 13485:2007 certifications and several Indonesian certificates. In 2008 Sarandi received the ASEAN business award and the Asian Productivity Organization award for being a role model SME.

Sarandi is active in the field of CSR (Corporate Social Responsibility) in multiple ways. Sarandi strives to have 10% of all employees as disabled people. At the moment around 5% of the employees are disabled and they work in all divisions of the company. Also does Sarandi have a 'green initiative', in which they try to save energy and consume less or environmentally friendlier materials in the production process. A part of this green strategy is also the introduction of Kaizen in 2008. For half a year there was a professional from Japan who taught the basics of 5S to Sarandi's employees. Since the introduction of 5S the amount of stock has been lowered from 300 million US Dollars to 50 Million US dollars and the factory uses only 50% of the space compared to the situation before the introduction of 5S (PT. Sarandi Karya Nugraha, 2012).

The products of Sarandi are mainly sold to the local market, to distributors and directly to end-users all throughout the country. At the moment there is also export to Saudi Arabia, Mauritius, North Africa and to organization Unicef. Most of the customers are government owned hospitals. The domestic market is large (over 1300 hospitals in Indonesia) and is expected to grow fast because the World Health Organization standard is one hospital bed for every 500 inhabitants. At the moment in

Indonesia there is one hospital bed for every 1377 inhabitants, and the government is working hard to reach the WHO goal. Therefore a large demand in hospital beds is expected.

1.3 Problem Definition

Sarandi indicated that they have an interest in increasing their administrative efficiency. For example the company was keen to implement an e-HRM system to improve their efficiency. It is important to understand the determinants of administrative efficiency in order to be able to systematically improve or to evaluate the effect of improvement attempts. A research of the literature learned that dimensions of organizational structure have a direct impact on administrative efficiency. Although many studies relating single dimensions of organizational structure to administrative efficiency are reported (e.g. standardization (Verlag, 2000), formalization (Payne & Pheysey, 1971) and specialization (Argyris, 1957)), studies that cover the relation of multiple dimensions of organizational structure to administrative efficiency are lacking.

Therefore the following research questions are formulated:

“To what extent and in what way does organizational structure contribute to administrative efficiency?” and to answer Sarandi’s initial question ***“How can Sarandi increase its administrative efficiency by changing the organizational structure?”***

1.4 Objective

The objective of this research is to determine which dimensions of organizational structure contribute to administrative efficiency, and in what way and to indicate opportunities for Sarandi to increase its administrative efficiency.

As stated before, at the moment there are no studies that relate organizational structure as a whole to administrative efficiency. Furthermore, at the moment there is also no knowledge of the position of Sarandi with regard to the dimensions of organizational structure. In this report an attempt will be made to connect the dimensions of organizational structure to administrative efficiency and see how Sarandi is currently organized in terms of the dimensions of organizational structure. Using this knowledge it will be possible to advise Sarandi on how to change the existing dimensions of organizational structure in order to attain higher administrative efficiency.

1.5 Outline of the report

In chapter one an introduction is given to the country, the company, previous research and a problem definition is given. In chapter two, the first research question will be answered. Here a connection between the dimensions of organizational structure and administrative efficiency will be made. Chapter three will look at the methodology of the empirical research in this thesis. Chapter four will focus on the current situation in Sarandi with regards to the dimensions of organizational structure and administrative efficiency. Chapter five contains the discussion of the results of the empirical study and focuses on testing the theoretical framework. Chapter six contains the conclusion and chapter seven will give an answer to the research question, “How can Sarandi increase its administrative efficiency by changing the organizational structure?”.

Chapter 2 Theoretical Framework

2.1 Defining administration

The word administration is used all around us and in various ways. For example, the Oxford English Dictionary describes administration as follows:

1. the process or activity of running a business, organization, etc.
2. the management of public affairs; government
3. the action of dispensing, giving, or applying something

(Oxford Dictionaries, 2010)

One can see that this is quite a broad definition and Dunsire (1973) confirms this. In his book called 'administration: the word and the science' he tries to explain what administration is, but in the final chapter his conclusion is that administration is a word that cannot easily be defined. This because there are a large number of ways the word can be used and its meaning depends on the context it is used in. In the present thesis, when talking about administration, we will mean the process or activity of running a business, specifically the gathering, processing and communicating of information. Practically everyone working in an organization participates in administrative activities. Administration is regulated by rules, these can be all kinds of rules, formal or informal (Bider, 2008).

2.2 Administrative Efficiency

In order to be able to look at the relation of the dimensions of organizational structure and administrative efficiency, we will first define administrative efficiency in this section.

Using empirical research Lewin et al. (1982) illustrate how courts can be evaluated on administrative efficiency using an approach called Data Envelopment Analysis, which can be defined as comparing the ratio of the weighted sum of outputs to the sum of inputs amongst different courts to compare efficiency.

Marudas (2004), in his research of the effects of wealth and efficiency of large Non Profit Organizations (NPOs) on private donations to such NPOs, defines administrative efficiency as program expenses (expenses for administrative purposes) divided by total expenses. Payne & Pheysey (1971) measured administrative efficiency by looking at the extent to which work is well organized and progresses systematically. Payne & Pheysey's (1971) paper builds on the research of Pugh et al. (1963), Pugh et al.'s research measured the organization context and structure. Payne & Pheysey continue here and created an index to measure the relationship between the perception of the organizational environment and the organizational structure, which they called the Business Organization Climate Index. In their research Payne & Pheysey (1971) found that the organization that was more bureaucratic scored higher on their measure of administrative efficiency.

Administrative efficiency can be interpreted as the efficiency of the gathering, processing and communicating of information.

In section 2.3 "Dimensions of organizational structure" the reader will see that most of the works referred to are from the 1960's and 1970's, the reason for this is that these papers laid the foundations defining formalization, standardization and more terms of organizational structure that even today are still frequently used. These papers are referred to often, for example, Google Scholar shows that Weber (1947) has 11.000 references, Pugh et al. (1963) has 450 references and Hage (1965) has 400 references. In these years many scholars studied the subject, but in the years following not much attention was given to this field of research. The papers have become the

“classics” on this topic and further attention that was paid to topics as formalization and the like was on an empirical basis. Walsh & Dewar (1987) have noticed this as well and the aim of their article was to “rekindle interest in the theoretical relevance of formalization that has been neglected by excessive empiricism” (pp. 216). It becomes even more significant in this study, as due to the upcoming importance of e-HRM and research into this subject, these dimensions of organizational structure are becoming theoretically relevant again because they provide the basis for looking at administration.

2.3 Dimensions of Organizational Structure

Pugh et al. (1963) defined six primary dimensions of organizational structure: specialization, standardization, formalization, centralization, configuration and flexibility. In the next sections each of these dimensions is explained and their relationship with regards to administrative efficiency is investigated using the results of empirical and theoretical research.

2.3.1 Standardization & Formalization

Two aspects of standardization are considered by Pugh et al (1963), standardization of procedures and standardization of roles. Procedures are standardized when all circumstances are covered by rules or definitions that apply consistently. Standardization of roles is defined as “the degree to which the organization prescribes the standardization of (1) role definition and qualifications for office, (2) role-performance measurement, (3) titles for office and symbols of role status and (4) rewards for role performance” (Pugh et al., 1963, p. 303). Consistent with this view, Child (1973b) defines standardization as “the extent to which activities are subject to standard procedures and rules” (pp. 3).

Formalization is defined by Pugh et al. (1963) and Child (1973) as the extent to which communications and procedures in an organization are written down and filed. It can include “(1) statements of procedures, rules roles... and (2) operations of procedures, which deal with (a) decision seeking...(b) conveying of decisions and instructions ... and (c) conveying of information including feedback” (Pugh et al., 1963, pp. 303). According to Pugh et al. (1963) the degree of formalization can be measured by seeing whether a certain procedure is written down, whether it is filed and what the source of the formalization is, for instance is it a legal requirement or just an idea of an individual.

Hage (1965, pp. 295), states that formalization is equal to standardization and is “measured by the proportion of codified jobs and the range of variation that is tolerated within the rules defining the jobs”. Dalton et al. (1980, pp. 58) also state that “standardization is closely aligned to formalization” and use both dimensions as if it was one. Formalization is the extent to which communications and procedures are written down and standardization refers to how one has to follow these rules. As one can see, standardization and formalization are closely related and because of this relationship they will be treated as one dimension in this report.

Without a minimum level of formalization/standardization role ambiguity may occur, which will affect performance. On the other hand, when there is too much formalization and standardization boredom, job dissatisfaction, alienation, absenteeism, and low output will occur. This suggests that there is a curvilinear relationship for the optimal level of formalization and standardization that balances between the two extremes (Dalton et al., 1980).

Although the amount of formalization and standardization can differ a lot between companies, Hall,

Johnson & Haas (1967) have found that neither complexity nor formalization can be implied from organizational size. In their paper Hall, Johnson & Haas have examined the relationship between organizational size and complexity & formalization using data from 75 organizations ranging from companies with less than 100 employees to companies with 1000 or more employees. They found that it is not always necessary for an organization to turn to formalization if other control mechanisms are present like the level of professionalization of the work force. Organizations with a more professionalized staff will likely have lower levels of formalization.

2.3.2 Contribution of standardization and formalization to administrative efficiency

Payne & Pheysey (1971) showed in their empirical research that an organization which has more standardization and formalization, scores higher on its measurement of administrative efficiency. Verlag (2000) shows in his empirical research of 707 companies in Germany, Austria and Switzerland that standardization has a positive influence on the reduction of transaction costs, which he defines as the efficiency of gathering information, negotiating and market positioning. Furthermore do the surveyed businesses rate the effects of standardization on interdepartmental communication as positive. This leads to the conclusion that standardization contributes in a positive way to administrative efficiency (Verlag, 2000).

Hage (1965) states that a high formalization of jobs result in developing expertise in a limited area and therefore greater efficiency in performance with fewer errors being made. These findings are in line with Weber's model of bureaucratic control (1947) stating that the higher the formalization, the higher the efficiency. Walton (2005) shows in his review of 64 empirical studies of the past 31 years that the model of bureaucratic control of Weber is still valid today.

Walsh & Dewar (1987) see three ways in which formalization contributes to administrative efficiency. The first way in which formalization contributes to administrative efficiency is that its rules signify a set of behaviors that do not have to be made explicit. This is because one has to say only a few key words or rules to explain what otherwise would have needed a detailed explanation to set in motion a complex interaction pattern.

Walsh & Dewar (1987) identify a second way in which formalization contributes to administrative efficiency, which is that it serves as a channel to direct and route interaction. This means that formalization helps define appropriate and inappropriate behaviors.

Thirdly "formalization contributes to efficiency in administration and influence by serving as a standard of distributive justice" (Walsh & Dewar, 1987, pp. 220). Because formalization is the extent to which "communications and procedures in an organization are written down and filed" Pugh et al. (1963, pp. 303), there are rules and procedures against which action is compared and punishments or rewards are given. Having these rules makes taking action more fair and efficient and will promote administrative efficiency as well as legitimating the decision that is made (Walsh & Dewar, 1987).

Child (1973b) confirms that standardization of rules decreases conflict in his empirical research of the relationships between organizational, work role and behavioral variables. This research looked at the model of administrative reduction of variance in behavior of Inkson, Hickson & Pugh (1968). In his study of 787 senior managers Child studied the hypothesized relationships of the organization structure variables in this model and found that standardization decreases conflict by removing sources of disagreement. His study however did not confirm Inkson et al.'s finding (1968) of a negative relationship between centralization and the level of conflict.

However, formalization can also have disadvantages. Individuals that are profiting from the current rules have interest in keeping the rules the way they are at that moment which will have negative consequences for adaptation of the company. Secondly, those that are being punished by the rules will want to change the rules to their benefit, which will not always be in the best interest of the company. Furthermore, the most dangerous consequence is that rules will be over used. Individuals will be striving for rewards and in their quest for them they will strictly follow the rules even if this is not always in the best interest of the company at all times.

2.3.3 Specialization

Specialization refers to the division of labor within the organization and there are several aspects to it. One of these aspects is the number of specialisms, those functions in an organization that are performed by specialists. Another aspect of specialization is the degree of role specialization, which is the degree to which tasks assigned to a particular role are narrowed down and specific. Friedman (1961) calls this type of specialization “specialized”, it is not necessarily difficult work, it is just narrowed down to a specific task. The other type Friedman defines is “specialists” with which he means a person who is highly trained and has specific skills that other employees do not have, a so called “expert” (Pugh et al., 1963).

2.3.4 Contribution of specialization to administrative efficiency

Payne & Mansfield’s (1973) empirical research of the relationships between different aspects of “organizational climate” and dimensions of organizational structure and context used data from 387 employees from all organizational levels. They found that organizational climate is significantly affected by organizational size and dependence. Also do they argue that bureaucratic elements of structure are related in a similar way to organizational size. They found that this prediction was true in particular for functional specialization, which is an indicator of specialization in general. Functional specialization leads to a more stimulating work climate, that is “scientific and technical orientation, intellectual orientation, job challenge, task orientation and industriousness” (Payne & Mansfield, 1973, pp. 523).

Reimann’s (1975) research shows that increasing scores for specialization, decentralization and formalization indicated increasing levels of bureaucracy, which according to bureaucracy researcher Weber (1945) perfects administrative efficiency. Webers model of bureaucracy is still considered valid today (Walton, 2005). Simon (1946) confirms this and states that “administrative efficiency is increased by a specialization of the task among the group” (pp. 53).

Argyris (1957) sees two different kinds of specialization which both increase the administrative efficiency. Firstly task specialization, he agrees with Simon (1947) that administrative efficiency is increased by assigning specialized tasks to employees. Second, unity of direction, while the first kind of specialization is specialization of the task, unity of direction is specialization of the objective or purpose. The efficiency increases if each organizational unit has a single set of activities that are planned and directed by the leader.

However Argyris (1957) warns that there are also downsides to task specialization: employees will tend to feel frustrated because their self-actualization will be blocked, they will tend to experience failure, they will tend to have a short-time perspective and as a result they will experience conflict because they will not like these characteristics of their present jobs.

In summary, literature shows that specialization contributes in a positive way to administrative

efficiency.

2.3.5 Centralization

Pugh et al. (1963) and Child (1973b) define centralization as “the extent to which the locus of authority to make decisions affecting the organization is confined to the higher levels of the hierarchy” (Child, 1973b, pp. 3). Dalton et al. (1980) states that the degree of centralization “refers to the dispersion of decision-making authority throughout the organization” (pp. 59). Aiken & Hage (1966) define centralization in their comparative study of 16 welfare organizations in a very similar way: “the degree to which members participate in decision-making” (pp. 497). According to them there are two important aspects of centralization. The first they call ‘hierarchy of authority’, this is the degree to which employees have freedom to implement tasks without interruptions from superiors. The second is the ‘degree of participation in decision-making’, which is the degree to which staff members participate in the setting of goals for the entire organization.

2.3.6 Contribution of centralization to administrative efficiency

Aiken & Hage (1976) suggested that highly centralized organizations with little autonomy over assigned tasks, similar to the negative effects of role specialization mentioned earlier in this paper, are likely to have high rates of work alienation and loss of perceived authority. According to Dalton et al. 's (1980) literature study, centralization has a negative to zero association with performance.

This corresponds with Grinyer & Yasai-Ardekani (1980) who show in their empirical research of 45 electrical engineering companies that decentralization was significantly linked to aspects of bureaucracy. Grinyer & Yasai-Ardekani (1980) discovered in their research that decision making tended to be more decentralized in more bureaucratic organizations. The results from their study support “...the claim of Child (1973) that the use of formal procedures, roles and specialized offices may be seen as a means of controlling use of decentralized decision making authority.” (Grinyer & Yasai-Ardekani, 1980, pp. 417-418). Pugh's (1973) empirical research also confirms that centralization is negatively correlated to other structural dimensions. He found that the more standardized, specialized and formalized the company, the less it is centralized. This adds empirical support to Hage's (1965) proposition that greater decentralization of decision making is permitted in bureaucratic organizations through the use of professionally qualified officeholders and thus centralization is significantly related to aspects of bureaucracy.

Concluding, centralization has a negative influence on administrative efficiency and thus decentralization should be preferred for attaining higher administrative efficiency.

2.3.7 Configuration

The fifth dimension of organizational structure defined by Pugh et al. (1963) is configuration. The dimension configuration consists of various aspects of structure, including horizontal and vertical spans of control, number of jobs in segments and criteria for segmentation.

A well-known model of configuration is that of Mintzberg (1980), he suggested that every organization consists of five parts. These parts, as illustrated in Figure 1, consist of the top management, the technical support staff, the middle management, the administrative support staff and the technical core. More in depth information about the function of each of these parts can be found in Mintzberg (1980).

Using these five parts, Mintzberg proposed that they could be combined together in different configurations to form five basic types of organization. In each of the five types of organization, the different parts vary in size and importance. However, in later articles Mintzberg (1989) states that most of the time organizations do not take one single form of organizational structure, but make a combination of several of the defined structures to obtain a configuration that fits best with the situation (Mintzberg, 1989).

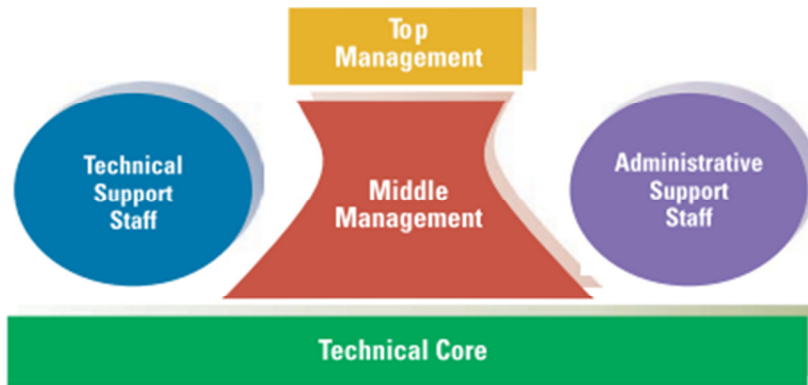


Figure 1 Based on Henry Mintzberg, *The Structuring of Organizations* (Englewood Cliffs, N.J.: Prentice-Hall, 1979), 215–297; and Henry Mintzberg, “Organization Design: Fashion or Fit?” *Harvard Business Review* 59 (January-February 1981), 103–116.

2.3.8 Contribution of configuration to administrative efficiency

Simon (1946) states some ‘common principles’ that occur in the literature of administration:

1. Administrative efficiency is increased by a specialization of the task among the group
2. Administrative efficiency is increased by arranging the members or the group in a determinate hierarchy of authority
3. Administrative efficiency is increased by limiting the span of control at any point in the hierarchy to a small number
4. Administrative efficiency is increased by grouping the workers, for purposes of control, according to (a) purpose, (b) process, (c) clientele, or (d) place (Simon, 1946)

As one can see, statement two, three and four are clearly related to the structural dimension ‘configuration’ proposed by Pugh et al. (1963). However, Simon (1946) argues that principle one and two conflict with each other. This is because one of the most important uses of authority in an organization is to make decisions with the specialism one has, in other words, the decision is made at the point in the organization that is most capable of taking the decision. This way decisions can be taken with more expertise than if each employee had only himself to make all the decisions. However if principle two, unity of command, is not observed, this will lead to confusion, inefficiency and irresponsibility (Simon, 1946).

The third principle is also prone to discrepancies, as on the one hand the span of control has to be limited, because if a manager has to supervise too many employees his control over them will weaken. But restricting the span of control will increase overhead greatly, because contact between organizational members has to be carried upward until a common superior is found and there will be more organizational layers that have to be crossed.

The fourth principle is ambiguous as well, by grouping workers the administrative efficiency is supposed to increase. However, one always has to choose how to group employees. For example, when grouping employees by purpose, so by putting all different kinds of professions in one unit, the advantages of grouping employees by process are lost.

Dalton et al. 's literature study (1980) looked at several aspects of structure: subunit size, horizontal and vertical span of control and concluded that for all three aspects there is no clear empirical evidence of a contribution to administrative efficiency. Also does Gooding (1985) in his meta-analysis of 31 published field studies confirm that subunit size and subunit performance are not significantly related.

Concluding, no single one of the aforementioned properties of configuration has a clear boundary of what it has to add to administrative efficiency. There is not one best type of configuration. It really depends on the context it is used in (Simon, 1946). Therefore this dimension cannot be used any further in this thesis.

2.3.9 Flexibility

Flexibility, in this context, is about changes in organizational structure, it involves the amount of changes an organization undergoes in a certain period of time. Pugh et al. (1963) distinguish three main factors: the amount of change, the speed of change and the acceleration of change. The amount of change is measured by looking at structural changes of an organization. The speed of change is the timespan in which the amount of change has taken place. The concept of acceleration of change is necessary to evaluate whether the change was continuously over a long period of time or whether the change consisted of small periods, spikes, of a lot of change. At the core of this is the "organization's receptivity to the ideas in its environment and its willingness and ability to absorb them" (Pugh et al., 1963, pp. 307). Hage (1965) agrees with this view and defines flexibility as the extent to which an organization adapts to changes in its environment.

2.3.10 Contribution of flexibility to administrative efficiency

Adler, Goldoftas & Levine (1999) argue that in existing literature flexibility and efficiency are found to be a tradeoff. If an organization has a simple task and is in a stable environment it should adopt a mechanistic form for achieving efficiency. While if an organization has a complex task and resides in a complex and changing environment its goal should be achieving flexibility (Burns & Stalker, 1961; Mintzberg, 1979).

However, some scholars argue that nowadays the era of tradeoffs is behind us (Ferdows & Meyer, 1990). With the help of flexible computer-based automation organizations can "become more ambidextrous by developing their innovativeness in non-routine tasks without impairing their efficiency in routine tasks" (Adler, Goldoftas, & Levine, 1999, pp. 45). Hence an organization can have an organizational structure designed for flexibility without having to make compromises on the level of (organizational) efficiency. Nevertheless, while improved organizational efficiency implies improved administrative efficiency, through reducing the administrative overhead, flexibility will at best have a neutral influence on administrative efficiency (Evans & Davis, 2005).

Pugh et al. (1968), the authors of the model of organizational structure used in this thesis, argue that it is not possible to obtain adequate data on the variable flexibility in a comparatively short period of time. This is due to the fact that it involves changes in structure and requires a longitudinal study. Since there is also no significant influence of flexibility on administrative efficiency to be found in literature this dimension will not be used any further in this thesis.

2.4 Summary of Contributions to Administrative Efficiency

In this paragraph a summary will be given of the answer to the research question, “To what extent and in what way does organizational structure contribute to administrative efficiency?”.

As can be read in the sections above, there definitely seems to be a contribution of organizational structure to administrative efficiency. However, not every dimension of organizational structure does this in the same way and to the same extent. A short summary of the contributions of each dimension can be found below and in Figure 2 a graphical overview of the contributions of the discussed dimensions to administrative efficiency can be seen. A plus (+) sign and minus (-) sign indicate respectively a positive or negative contribution to administrative efficiency.

In Table 1 an overview of the influence of the structural dimensions on administrative efficiency can be found. This table is based on the information that has been described in this chapter and states in which ways the dimensions of organizational structure contribute to administrative efficiency and whether this is a positive or negative contribution.

According to literature having higher levels of Formalization/Standardization in an organization leads to higher administrative efficiency (e.g. Payne & Pheysey, 1970; Verlag, 2000; Walsh & Dewar, 1987) . The same goes for specialization, literature shows that higher levels of specialization lead to higher administrative efficiency (e.g. Reimann, 1975; Argyris, 1957, Simon, 1946). Centralization, however, has a negative effect on administrative efficiency. This is not strange, since empirical research has shown that decentralization is linked to higher levels of bureaucracy (e.g. Gryinyer & Yasai-Ardekani, 1980; Pugh, 1973) . So it can be said that decentralization has a positive effect on administrative efficiency.

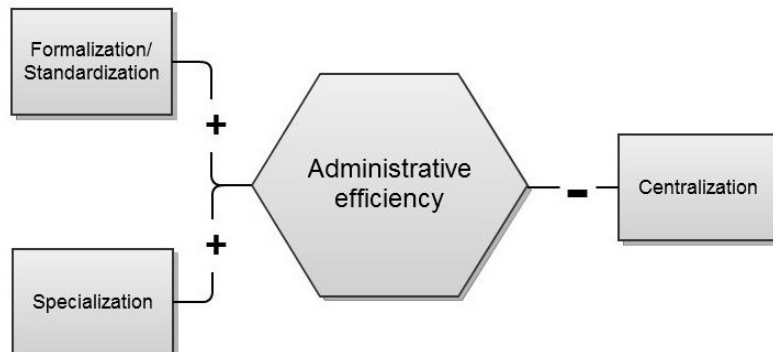


Figure 2 Contribution to administrative efficiency for discussed dimensions of organizational structure

Table 1 influence of structural dimensions on administrative efficiency

Dimension	Positive/Negative	In what way
Std./Formalization	Positive	Influence on the reduction of transaction costs (Verlag, 2000)
Std./Formalization	Positive	Influence on interdepartmental communication (Verlag, 2000)
Std./Formalization	Positive	Developing expertise in a limited area and therefore greater efficiency in performance with fewer errors being made (Hage, 1965)
Std./Formalization	Positive	It signifies a set of behaviors that do not have to be made explicit (Walsh & Dewar, 1987)
Std./Formalization	Positive	It serves as a channel to route and direct interaction (Walsh & Dewar, 1987)
Std./Formalization	Positive	It serves as a standard of distributive justice (Walsh & Dewar, 1987)
Std./Formalization	Negative	Individuals that profit from current rules will not want to change them for the best of the company (Walsh & Dewar, 1987)
Std./Formalization	Negative	Those that are being punished by the rules will want to change them to their own benefit (Walsh & Dewar, 1987)
Std./Formalization	Negative	Rules will be overused (Walsh & Dewar, 1987)
Specialization	Positive	It leads to a more stimulating work climate (Payne & Mansfield, 1973)
Specialization	Positive	By specialization of a task in the group administrative efficiency is increased (Simon, 1946; Argyris, 1957)
Specialization	Positive	It increases efficiency by assigning each unit a single set of activities planned and directed by the leader (Argyris, 1957)
Specialization	Negative	Role specialization leads to employees with a short-term perspective and they will feel frustrated (Argyris, 1957)
Centralization	Negative	It leads to high rates of work alienation and loss of perceived authority. (Aiken & Hage, 1976)
Centralization	Negative	It has a negative to zero association with performance (Dalton et al., 1980)
Centralization	Negative	Centralization is negatively linked to bureaucracy. (Grinyer & Yasai-Ardekani, 1980)
Centralization	Negative	It is negatively related to standardization, formalization and specialization. (Grinyer & Yasai-Ardekani, 1980; Pugh et al., 1968)

Chapter 3 Methodology

This research is a descriptive-prescriptive research. The organization is described in terms of a prescriptive model and based on this recommendations are given. The validity of the model is assured by verifying each of the assumed contributions of dimensions of organizational structure to administrative efficiency with results from literature of both theoretical and empirical evidence. The reliability of the model is assured by making sure that information comes from multiple persons that are interviewed.

The theoretical framework developed in chapter two predicts the contribution of dimensions of organizational structure to administrative efficiency. In order to make predictions with the framework it is necessary to have data on the dimensions of organizational structure. To get the data on these dimensions a list with scaling items was created to assess the current situation in Sarandi, from now on to be called "rating instrument". More information on the rating instrument can be found in section 3.4.1.

In the literature another way of assessing the dimensions of organizational structure exists, in the form of a scaling instrument consisting of an item scoring list by Pugh et al. (1968), from now on to be called "scales". This instrument is a very extensive list of around 170 items which need to be scored, compared to 16 items of the rating instrument developed in this thesis. The other main difference between the two methods of assessing the dimensions of organizational structure is that the scales by Pugh et al. focus on an absolute measurement whereas the scaling items from this thesis focus on ratios. For example to measure the dimension formalization, Pugh et al. created a long list of rules and procedures that may or may not be formalized. Then to assess the formalization all the rules and procedures that are formalized in a company are counted and the total count forms the final score of the formalization in the company. The rating instrument focusses on proportions, it looks at the percentage of all the rules and procedures that are formalized. This makes the instrument more flexible and independent of a list of predetermined items that may not be complete.

To check whether the rating instrument created in this thesis provides accurate predictions both the rating instrument and the scales will be used as a measure of the dimensions of organizational structure in Sarandi and the results will be compared and discussed.

3.1 Sampling Design

For the data collection of the rating instrument, four interviews were held with department heads of HR, Production, Research & Development and the factory manager. These persons were selected because they were the relevant information holders and because of their adequate level of knowledge of the English language.

For the scales part of the research, experts with deep knowledge of the specific questions that needed answering were selected in cooperation with a key person (head HR) from the organization who had a good overview of the company. This key person suggested the employees that would be best able to answer each specific item of the scales. The employees selected were department heads of HR, Accounting, Production Planning and Inventory Control, Warehouse, IT, Purchasing, Sales, Production, the department of ISO standards and the secretary of the Board of Directors.

3.2 Research Design

In order to be able to gain information of Sarandi on the three dimensions of organizational structure three different sources of information were used. In Table 2 an overview of the data gathering methods can be found. The interviews are discussed in section 3.2.1. The scale interviews are described in 3.2.2 and the gathering of company data in 3.2.3.

Table 2 data sources

Method	Research data	
	Organizational structure	Administrative efficiency
Interview, rating instrument	X	
Interview, administrative efficiency		X
Scale interview	X	X
Company data		X

3.2.1 Rating instrument

The interviews are divided into two parts, the rating instrument part pertaining to the dimensions of organizational structure and second part pertaining to administrative efficiency.

Based on literature a framework with observation items for the dimensions of organizational structure was created, which can be found in Table 3. These observation items were then used in individual depth interviews to obtain the information on the dimensions of organizational structure need. The purpose of these interviews was for the interviewer to get an overview of the company and its position on the dimensions that were investigated.

Based on literature indicators for administrative efficiency were formulated. The interviews were also used to obtain information on these indicators for administrative efficiency which is combined with the company data in order to evaluate the administrative efficiency of Sarandi. Information about the gathering of company data can be found in section 3.2.3 “study of company data”.

Table 3 dimensions of organizational structure

1 st order construct	2 nd order construct	Observation Items	Instruments
Standardization /Formalization: the extent to which communications and procedures are written down and standardization refers to how one has to follow these rules (Dalton et al., 1980)	a. Extent to which rules are written down and filed b. Job codification c. Job specificity	<ul style="list-style-type: none"> • 1.(a) What are the number of written rules and policies? • 2.(a) Is a procedure written down? • 3.(a) Is it filed? • 4.(a) What was the source of the formalization? • 5.(b) To what extent is information documented? • 6.(b) What is the range of variation tolerated within rules defining jobs? • 7.(b) To what extent are employees being checked for rule violations? • 8.(c) Do employees all have a specific job to do? • 9.(c) Can they make their own decisions? 	Observation/ Interviews
Specialization: the division of labor within the organization (Pugh et al., 1963)	a. The number of specialisms b. The degree of role specialization (the differentiation of activities within each function)	<ul style="list-style-type: none"> • 10.(a) The number of functions in which there are professionals • 11.(a) The extent to which each specialism is professionalized • 12.(b) How narrowed down are the jobs? 	Observation/ Interviews
Centralization: The locus of authority to make decisions affecting the organization (Child, 1973b)	a. Hierarchy of authority b. Degree of non-participation in decision making	<ul style="list-style-type: none"> • 13.(a) What is the degree of freedom employees have when implementing tasks? • 14.(a) What is the thoroughness and frequency of review procedures ? • 15.(b) At what organizational level are the decisions taken? • 16.(b) What is de degree to which staff members participate in setting goals for the entire organization? 	Observation/ Interviews

Table 4 indicators of administrative efficiency

1 st order construct	2 nd order construct	Observation Items	Instruments
Administrative efficiency	<ul style="list-style-type: none"> • Efficiency of information gathering • Efficiency of information processing • Efficiency of communicating of information 	<ul style="list-style-type: none"> • The extent to which work is well organized and progresses systematically • Administrative costs as a percentage of total spending • Percentage of administrative versus workflow personnel • Percentage of orders delivered on time 	Observation/ Interviews

3.2.2 Scales

The quantitative scales for the dimensions of organizational structure from the study by Pugh et al. (1968) were used. These scales were used for the analysis of organizations in the manufacturing industry and the scales were constructed in a way that they are applicable to all organizations, so the usage of these scales to measure the dimensions of organizational structure in Sarandi is appropriate.

The results from these scales will be compared with the results from the rating instrument and the theoretical implications will be investigated.

In Appendix 1 an overview of all the items on the scales is presented. Also, the score of Sarandi on these items can be found, but read the findings in chapter 4 first.

To clarify the working of these scales per dimension, in the next paragraphs an explanation is given of how the items were answered and how the scores were calculated.

Standardization

For each of the items in the second column an item scoring list is given (Appendix 1, Table 1). This list shows the options of scoring the company on the respective items. The score on all the items is added up to form a total score of Sarandi on this scale.

Formalization

The items of the formalization scale check whether a certain process, procedure or policy is written down (“formalized”). The formalization items and Sarandi’s score on them can be found in Appendix 1, Table 2. If the specific item exists in the company, for example there are indeed “minutes for senior executive meetings” then a score of one is given. If the specific item is not formalized in the company a score of zero is given. The score on all the items is added up to form a total score of Sarandi on this scale.

Specialization

The items of the specialization scale pertain to activities that exist in an all organizations and can be found together with Sarandi’s score on the items in Appendix 1, Table 3. If a personnel function coincides with exactly one activity this function is specialized. If many activities are performed by specialized functions, the degree of specialization of the company is high. An activity which is

performed in a specialized function scores one. An activity that is not performed in a specialized function scores zero. The score on all the items is added up to form a total score of Sarandi on this scale.

Centralization

To measure the centralization Pugh et al. (1968) created a list of recurrent decisions covering a range of organizational activities and together with Sarandi's score it can be found in Appendix 1, Table 4. This list of decisions is then evaluated by asking who the person is (in what organizational level of the company) that gives the final decision. Pugh et al. defined six levels in the hierarchy of an organization, it starts at level 0: the operator and goes all the way up to level 5 which is the Board of Directors. Then for each decision in the list an answer is given to the question which organizational level has to give permission. For example when looking at the item "determining price of output", if the permission from the CEO is necessary a score of 4 is given. If the permission of the division head would be enough a score of 2 is given. So the higher the score the higher the centralization. Using this logic all the items are answered and added up to form a total score of Sarandi of this scale.

3.2.3 Study of company data

To make an assessment of the administrative efficiency of Sarandi information from interviews was combined with company data relevant to the indicators of administrative efficiency. This company data was compiled by subject experts, i.e. the head of the Production Planning and Inventory Control department, the head of the Accounting department and the head of the Human Resources department. The raw data was processed and the results can be found in the Table 19 and Table 20 of paragraph 4.4 "Administrative efficiency".

3.2.4 A test of the framework

To test the framework the predictions of administrative efficiency will be based on scores obtained with the rating instrument, this being the preferred instrument.

The predicted administrative efficiency will be compared to the current administrative efficiency as measured by indicators which can be found in Table 4 and the scoring of the items in Table 12.

Interviews with employees and study of company data is used as input for these indicators.

3.3 Data Collection

3.3.1 Rating instrument

The interviews were focused (semi-structured) interviews. The reason that this interview style was chosen is because this allows for employees to not only answer direct questions, but to share whatever they think is important regarding the subject. Also does it give flexibility to the interviewer because as a result of what the interviewee says new questions can be brought up during the interview. Semi-structured interviews can provide reliable, comparable qualitative data (Qualitative Research Guidelines Project, 2006).

The interviewees were each taken out of their work environment for interviewing in a separate room, one at a time. Each of the interviews lasted about one hour. In each interview the three dimensions of organizational structure were discussed based on the observation items for each of the dimensions (which can be found in Table 3). In Appendix 2, the interview transcripts can be found. For each interview the results relevant to each of the three dimensions are grouped together.

3.3.2 Scales

The scores on the scales were acquired in the same way as the original author (Pugh et al., 1968) did this. As described in 3.1 “Sampling” first a key person was determined and interviewed. This key person suggested “experts” that could answer specific questions which were in their expertise to obtain the required information. Based on the information from these experts the interviewer filled in the questionnaire from Pugh et al. When filling in the questionnaire knowledge previously gained from the interviews was used to check whether answers of the respondents were reasonable. If a response was not totally clear the interviewer would keep on asking questions based on already known information. For example if the question was: “Do employees regularly go to conferences” and the answer would be “yes” a follow up question could be “Could you give some examples of recently attended conferences?”.

Because the experts answered questions that were suited for their expertise, no expert answered all the items but the answers from all the ten experts on the items were combined. But even though every item of the questionnaire is answered by only one expert, many items are combined in the scales meaning that most scales are based on answers from more than one respondent, in Table 5 an overview of the respondents for each scale can be found. Specialization is the only scale that is based on answers from only one respondent. However it is a very simple scale (see 3.2.2 “Scales” for information on the specialization scale) which is easy to observe. Because of this no doubts have to be risen about the correctness of the answers of the respondent.

Table 5 respondents

Scale	Respondents
Standardization	Head of: HR, Warehouse, Production Planning & Inventory Control, IT, Accounting, Purchasing, Sales.
Formalization	Head of: HR, Production, Warehouse, Production Planning & Scheduling, ISO department and secretary of the Board of Directors
Specialization	Head of HR
Centralization	Head of HR and head of Purchasing

3.4 Data analysis

3.4.1 Rating instrument

The indicators used for the interviews are scored as given in Table 7. The numbers of the observation items correspond with the number used in Table 3 “dimensions of organizational structure”. In the first row one can see that many observation items are grouped together. These items all can be rated as a percentage, which is translated in a score from 1 to 5. For example the item “what is the degree of freedom employees have when implementing tasks?”, if employees would have zero percent freedom when implementing their tasks this would correspond with a score of 1, a hundred percent freedom would correspond with a score of 5 etcetera.

Besides these items there are also items that cannot be expressed as a percentage and hence the item scoring is explained separately.

To get a rating for each scale the mean is taken of scores of the indicators belonging to that particular scale. For example for the scale of standardization and formalization there are nine indicators, hence the score on all these indicators is added and divided by nine to gain an average. These average scores are then rounded and converted in a rating from “low” to “high” as seen in Table 6.

Table 6 rating interview scores

Rating	Rounded average score
Low	1
Low to medium	2
Medium	3
Medium to high	4
High	5

Table 7 scoring indicators dimensions of organizational structure

Observation items	Item scoring
1,2,3,5,8,10,11,13,16	The percentage that corresponds with the respective indicator gives a score per indicator as follows. 0-20% = 1 21-40% = 2 41-60% = 3 61-80% = 4 81-100% = 5
4. What was the source of the formalization?	1-government, 2-government+ parent company regulation, 3- as 2 + company regulation, 4- as 3 + production standards (e.g. ISO), 5- as 4 + individual employee
6. What is the range of variation tolerated within rules defining jobs?	1-no restrictions on variation, 2-very little restrictions on variation, 3-some restrictions on variation, 4-variation mostly restricted, 5-variation completely restricted
7. To what extent are employees being checked for rule violations?	1-no checks on rule violations, 2-little checks on rule violations, 3-certain kinds of rule violations are checked, 4-most kind of rule violations are checked, 5-all kinds of rule violations are checked
9. Can employees make their own decisions?	1-employees make all decisions themselves, 2-employees make almost all decisions themselves, 3-employees make some decisions themselves, 4-employees make little decisions themselves, 5-employees make no decisions
12. How narrowed down are the jobs?	1-not narrowed down, 2-slightly narrowed down, 3-moderately narrowed down, 4-mostly narrowed down, 5-fully narrowed down
14. What is the thoroughness and frequency of review procedures?	1-never, 2-on irregular basis, 3-yearly, 4-half-yearly, 5-quarterly
15. At what organizational level are the decisions taken?	1-operator, 2-section head, 3-division head, 4-factory manager, 5-CEO

3.4.2 Scales

To convert the score of Sarandi on the scales by Pugh et al. (1968) to a five point rating the range of the scores was calculated for each scale. Then this range was divided in five parts to determine in which part the score of Sarandi was. To further clarify this we will show the calculations for each scale.

Standardization

The maximum possible score on this scale is 163 and the minimum possible score is 7. This gives a range of scores possible from 8 to 163. The range of $163-7=156$ is then divided into five parts to get a rating scale.

Table 8 rating standardization

Rating	Score
Low	7 to 38,2
Low to medium	38,3 to 69,4
Medium	69,5 to 100,6
Medium to high	100,7 to 131,8
High	131,9 to 163

Formalization

The maximum possible score on this scale is 39, the minimum possible score is 0. This gives a range of scores possible from 0 to 39. The maximum score of 39 is then divided into five parts to get a rating scale.

Table 9 rating formalization

Rating	Score
Low	0 to 7,8
Low to medium	7,9 to 15,6
Medium	15,7 to 23,4
Medium to high	23,5 to 31,2
High	31,3 to 39,0

Specialization

The maximum possible score on this scale is 16, the minimum possible score is 0. This gives a range of possible scores from 0 to 16. The maximum score of 16 is then divided into five parts to get a rating scale.

Table 10 rating specialization

Rating	Score
Low	0 to 3,2
Low to medium	3,3 to 6,4
Medium	6,5 to 9,6
Medium to high	9,7 to 12,8
High	12,8 to 16,0

Centralization

The maximum possible score on this scale is 185, the minimum possible score is 0. This gives the scale a range of possible scores from 0 to 185. The maximum score of 185 is then divided into five parts to get a rating scale, by coincidence the scores are round numbers.

Table 11 rating centralization

Rating	Score
Low	0 to 37
Low to medium	38 to 74
Medium	75 to 111
Medium to high	112 to 148
High	148 to 185

3.4.3 Administrative efficiency

The indicators used to determine the administrative efficiency in Sarandi are scored as in Table 12. All the indicators are scored on a five point scale ranging from 1 to 5. To get a rating for the administrative efficiency the mean is taken of scores of the indicators. This average score is then rounded and converted in a rating from “low” to “high” in the same fashion as the ratings of the dimensions of organizational structure and can be found in Table 6.

Table 12 scoring of administrative efficiency indicators

Observation items	Item scoring
The extent to which work is well organized and progresses systematically	1-no planning and no monitoring of production process, 2-short term planning or monitoring production process, 3-short term planning and monitoring production process, 4-long term planning and monitoring production process, 5-long term planning, monitoring production process and setting future vision and goals
Administrative costs as a percentage of total spending	1-50% to 30%, 2-30% to 20%, 3-20% to 10%, 4-10% to 5%, 5-5% or less
Percentage of administrative versus workflow personnel	1-50% or more, 2-50% to 40%, 3-40% to 30%, 4-30% to 20%, 5-20% or less
Percentage of orders delivered on time	1-40% or less, 2-40% to 55%, 3-55% to 70%, 4-70% to 85%, 5-85% to 100%

3.5 Limitations

Data gathered in the interviews with employees might have been influenced by the subjective view of the interviewees. However many different persons from different departments were interviewed and the results from these interviews are combined with the score of Sarandi on the scales by Pugh et al. (1968). Also are the scores on the items in the scales by Pugh et al. based on the interpretation of the answers from respondents the interviewer received.

Furthermore is the data gathered only from a short period of observations and might give a biased view due to this.

Another limitation imposed on the research is that not all of the employees of the company could speak English, however this turned out not to be a problem.

Finally, the accuracy of the theoretical framework was only tested by looking at one company. To be sure that the conclusions drawn in the theoretical framework are correct more companies have to be studied.

Chapter 4 Findings

In this chapter the scores on the dimensions of organizational structure in Sarandi are presented first. For every dimension the outcomes of the rating instrument and the scales are given, as well as the overall score.

Next the assessment of the administrative efficiency of Sarandi (as defined in section 3.4.3) can be found.

4.1 Formalization/Standardization

4.1.1 Rating instrument

At the end of this section in Table 13 the score of Sarandi on the indicators is given together with the average score as defined in the methodology section.

What are the number of written rules and policies?

In Sarandi all the important rules are in the company regulations, which are composed into a booklet which every new employee receives. New employees are tested for their knowledge of the rules after one month of working and also do all employees receive a new copy of the rulebook every two years. Almost all the rules that exist in Sarandi are written down.

Is a procedure written down?

Procedures are written down in Sarandi to some extent. Procedures for inspection, stock control, operational control, financial control et cetera are all written down. However these procedures are all relatively “high level” procedures. The exact details of what an operator should do and how he should do it are not written down.

Is it filed?

All the rules and procedures that are written down are filed in IT systems which can be accessed by all departments. For example all the documents relating to the ISO standards Sarandi adheres to can be found in a special IT system, which also keeps track of the implementation of these standards.

What was the source of the formalization?

This indicator looks at what the sources are of the formalized documents. If a company only has formalized documents because of certain government regulations this indicates a lower formalization than when a company formalizes everything, down to suggestions from individual employees.

In Sarandi the sources of formalization both internal and external are the government regulations, the company regulations and the various standards that Sarandi adheres to (several ISO standards, Astra Green Company and SA 8000). All these documents are available in hard and soft copy.

To what extent is information documented?

Due to the introduction of 5S and Kaizen in Sarandi, quite a lot of information is documented. For example in every division there is a list on the wall which displays the responsibilities of all the employees. Also is there a list with all the inventory of a division, like the number of pc’s, the number of telephones et cetera. “For every order that is finished a paper has to be signed. The division head makes sure that employees do this.” (Interview with Head production).

What is the range of variation tolerated within rules defining jobs?

“There are no standard operating procedures” (Interview with Factory Manager). Operators are allowed to perform operations the way they like, but there is not much room for variation as a lot of

time 'jigs' (a device that holds a piece of work and guides the tool operating on it) are used to make sure that every part produced is exactly up to specifications. However, there are no standard times and sometimes employees will stall the production process in order to get more overtime work, but the supervisor cannot always tell if this is the case because of the lack of standard times and procedures. The Division heads and office staff have more freedom, they can perform tasks the way they want as long as they reach their goals and do not violate the rules.

To what extent are employees being checked for rule violations?

"Each supervisor is responsible for monitoring whether the subordinate violated company policy or not" (Interview with Head HRD). If a supervisor sees that an employee violating a company rule he reports it to the Human Resources Department (HRD). HRD will have a coaching session with the employee and will talk about what the reason was that the employee broke the company rules and why it is inappropriate to do so. Also does every employee have an obliged coaching session once a year to evaluate performance.

Do employees all have a specific job to do?

"Employees all have a specific task depending on the experience they have" (Interview with Head Production). For all employees there is a brief job description, but in practice the jobs they need to perform are not formalized at all. This makes it difficult to transfer the knowledge to new employees and thus preventing them from getting started quickly. All employees have a specific task they need to do and most employees cannot perform another task than the task they do at the moment.

Can they make their own decisions?

It depends on the situation. When it comes to organizational policy employees do not have the authority to decide anything. "Section heads can make decisions with regard to the production process, but other than that they do not have authority"(Interview with Head HRD). Section heads have a monitoring function. Operators can make only small decisions regarding the way of working.

Overall Sarandi tries hard to achieve a high formalization, all communication goes via email, all important documents are in IT systems and due to the kaizen program more and more things are documented. However the jobs themselves are not formalized/standardized and the same goes with the wages and performance appraisal of employees.

Table 13 rating instrument score on standardization/formalization

Observation Item	Item scoring
What are the number of written rules and policies	5
Is a procedure written down?	3
Is it filed?	5
What was the source of the formalization?	4
To what extent is information documented?	4
What is the range of variation tolerated within rules defining jobs?	3
To what extent are employees being checked for rule violations?	4
Do employees all have a specific job to do?	5
Can they make their own decisions?	4
Average total score of Sarandi	4
Rating	Medium to High

4.1.2 Scales

Besides the rating instrument the score of Sarandi on the standardization/formalization dimension is also measured by the scales as described in the methodology section 3.4.2 Data analysis – Scales. A full list of all the items for the two scales together with the scores of Sarandi on them can be found in Appendix 1, Table 1 and Appendix 1, Table 2. The scores of Sarandi on the two scales and the rating can be found in Table 14 below.

Sarandi has a score of 101 on the scale of standardization, which translates to a rating of medium to high. On the scale formalization Sarandi scores 29 which also translates to a rating of medium to high.

Table 14 score on standardization/formalization scale

Scale	Score	Rating
Standardization	101	Medium to high
Formalization	29	Medium to high

Overall score on the standardization/formalization dimension

Both the rating from the rating instrument and the rating from the scales suggest that the standardization/formalization is medium to high at Sarandi.

4.2 Specialization

4.2.1 Rating instrument

The following paragraphs are based on information gathered from interviews as described in the methodology section. For each of the indicators formulated in the methodology section a motivation of the score of Sarandi is given. At the end of this section in Table 15 the score of Sarandi on the indicators is given together with the average score as defined in the methodology section.

The number of functions in which there are professionals

“For welding, machining, painting and polishing there are specialists.” (Interview with Factory Manager). Other than in these functions there are not many specialists. Most of the tasks performed are not very complicated and do not require specialists, however only few employees can perform multiple tasks.

The extent to which each specialism is professionalized

“In production the employees have a specific job to do , for example an employee from drilling cannot do machining.” (Interview with head Production). Some specific employees are trained to be able to also work in another division in case there is a need for extra personnel, but as stated before: most employees are not cross trained. Section heads receive a special training for leadership because this proves to be very difficult for them.

How narrowed down are the jobs?

The jobs of new employees are narrowed down, but as they gain experience they will slowly start to get more responsibilities. Sometimes there are special projects in Sarandi, which will be completed by employees with more or specific skills. However when a job is more specialized the employee does not receive more salary. Many different tasks are being worked in parallel with each other, because for specific tasks the parts run out sometimes so employees start working on a different task in the meanwhile.

Table 15 rating instrument score on specialization

Observation Item	Item scoring
The number of functions in which there are professionals	2
The extent to which each specialism is professionalized	4
How narrowed down are the jobs?	4
Average total score of Sarandi	3
Rating	Medium

4.2.2 Scales

Besides the rating instrument the score of Sarandi on the specialization dimension is also measured by the scales as described in the methodology section 3.4.2 Data analysis – Scales.

A full list of all the items of the scale together with the scores of Sarandi on it can be found in Appendix 1, Table 3. In Table 16 the score and the rating of Sarandi on the specialization scale is shown. What can be seen is that Sarandi scores medium to high on the specialization scale.

Table 16 score on specialization scale

Scale	Score	Rating
Specialization	11	Medium to High

Overall score on the specialization dimension

The score from the rating instrument does not match with the score from the scales. The rating instrument gives a medium score, while the scales give a medium to high score. The reason that these scores do not match might originate from the way specialization is measured by both instruments.

The scales by Pugh et al. consists of a list of functions that exist in a company and if there is a person who performs that function and only that function, it counts as a point on the specialization scale. So even if there is a whole division of, for example, sales persons who do all kinds of sales unrelated tasks, as long as one person in the division only performs sales tasks it will count as point on the scale. On the other hand, the rating instrument looks at the percentage of the employees that perform a specialist function, and therefore will give a lower score.

Another reason that the rating instrument gives a lower score on specialization is caused by the definition of “specialist”. The rating instrument uses the definition of “specialist” as defined by Friedman (1961), which is a person who is highly trained and has specific skills that other employees do not have, a so called “expert”. The scales just look at whether an employee performs a specific function and no other, regardless of expertise. Because of this broader definition it is easier for an employee to fall in the category of “specialist” and thus a higher score on the specialization scale results.

Because of the use of percentages and a more precise definition of “specialist” that is used by the rating instrument this will be the rating that is used in this thesis. *Therefore the specialization in Sarandi is rated as Medium.*

4.3 Centralization

4.3.1 Rating instrument

The following paragraphs are based on information gathered from interviews as described in the methodology section. For each of the indicators formulated in the methodology section a motivation of the score of Sarandi is given. At the end of this section in Table 17 the score of Sarandi on the indicators is given together with the average score as defined in the methodology section.

What is the degree of freedom employees have when implementing tasks?

“A production employee does have some freedom in implementing his or her task. But because of the use of jigs there is not a whole lot of freedom.” (Interview with head Production).

Supervisors and office staff have more freedom, they can implement their task the way they like, as long as they reach their goals.

What is the thoroughness and frequency of review procedures?

“We have performance evaluations once a year for every employee” (Interview with head HRD). The supervisor is in charge of filling in the performance appraisal and HRD will evaluate together with the employee. If the review is favorable, the salary of the employee might go up, likewise if the review is not too good the salary will not increase. “A lot of attention is paid to the fact that employees should

be on time, there are strict rules for this.” (Interview with Head R&D). If an employee is calling in sick he should hand over a doctor’s note the next day to prove that he was really sick.

At what organizational level are the decisions taken?

“All the important decisions are taken by the Board of Directors” (Interview with Head R&D). As the quote already tells, taking of decisions is highly centralized in Sarandi. Every decision, whether it is a drawing from R&D for production, a new feature for the IT system developed by the IT department or setting a price for a new product, it all has to go to the Board of Directors and get permission. Division heads cannot do many things without permission from the Board of Directors.

What is the degree to which staff members participate in setting goals for the entire organization?

Every year all the division heads make goals for their divisions for the coming year. All these goals are then discussed in a meeting together with the Board of Directors. However all these goals are only for the own division of the department heads, they do not focus on setting companywide goals. Or to quote the head of the Human Resource Department “All staff members are free to participate in providing input, but the final decision remains for the management”. Only the BOD sets companywide goals based on the meetings with the department heads.

Table 17 rating instrument score on centralization

Observation Item	Item scoring
What is the degree of freedom employees have when implementing tasks?	4
What is the thoroughness and frequency of review procedures?	3
At what organizational level are the decisions taken?	5
What is the degree to which staff members participate in setting goals for the entire organization?	5
Average total score of Sarandi	4
Rating	Medium to High

4.3.2 Scales

Besides the interviews the score of Sarandi on the centralization dimension is also measured by the scales as described in the methodology section 3.4.2 Data analysis – Scales.

A full list of all the items of the scale together with the scores of Sarandi on it can be found in Appendix 1, Table 4. In Table 18 the score and the rating of Sarandi on the centralization scale is shown. It turns out that with a score of 137 Sarandi rates medium to high on the centralization scale.

Table 18 score on centralization scale

Scale	Score	Rating
Centralization	137	Medium to high

Overall score on the centralization dimension

Both the rating from the interview and the rating from the scales suggest that the centralization is medium to high at Sarandi.

4.4 Administrative efficiency

The information in this paragraph is based on the interviews with employees combined with company data from relevant departments. In Table 21 an overview of the scores of Sarandi on the indicators can be found.

The first indicator is *'The extent to which work is well organized and progresses systematically'*. Sarandi has many IT systems to keep track of the production process. For example there is a system in which the production employees have to keep track of all the work they complete. There is a warehousing system, to keep track of parts that need to be ordered on basis of the orders that Sarandi receives. But all these systems are focused on the short term and most importantly they are not interconnected. There is also no system at Sarandi that focuses on the long term performance of the company.

Interviews with employees show that in general there is a lack of focus in Sarandi; divisions make their own goals and they do not coordinate these goals with the other divisions and they do not make a long term planning.

Meetings are often not effective because many times not all necessary participants are attending and the next meeting information has to be repeated. Also do some attendants of meetings have no real purpose of being in the meeting and they start talking and even making phone calls during presentations. The Board of Directors is not always on one line, which leads to confusing situations for employees. *This leads to a score of three on this indicator.*

The administrative costs are relatively speaking very high at Sarandi. In Table 19 one can see that on the indicator *'administrative costs as a percentage of total spending'* that 16,6% of all spending (including cost of goods sold) goes to administrative costs, which includes wages and all necessary costs for the administration. If the costs for the marketing department are included then the percentage is even higher, 25,4%. This shows that Sarandi spends a lot of money on administration, indicating that the resources are not efficiently used (Esih, 2012). *Because the administrative costs as a percentage of total spending is 16,6% Sarandi gets a score of three on this indicator.*

Table 19 Costs overview

Measure	Costs in billion Rupiah
Administrative costs	5,7
Marketing costs	3
Production costs	25,5
Total costs	34,2
Administrative vs. total costs	16,6%
Administrative + marketing costs vs. total costs	25,4%

When looking at the indicator *'percentage of administrative to workflow personnel'*: calculations show that at Sarandi, 60% of the employees are directly related to the production and 40% of the employees is not directly related to production and work in area's as finance and HR. This is slightly higher than the average of 34,39 percent found by Pugh et al. (1968). This is reflected in the expenditure on wages, 50% of the expenditure on wages goes towards administrative employees.

Only 25% of the wages is destined for production personnel (Esih, 2012; Aishitere, R. & Ru'yad, 2012). *Because the percentage of administrative versus workflow personnel is 40% in Sarandi a score of three is given.*

Regarding the indicator, '*percentage of orders that is delivered on time*', of the 1454 orders in the year 2011 only 495 orders were on time and 959 orders were late. This gives a total of 34% of orders that is on time. The average order is delivered 7 days behind schedule, however this is not a good representation as there seems to be a lot of variation. Some orders are finished weeks ahead of schedule and some orders are finished many days late; this is reflected in the standard deviation of 30 days (Rudi, 2012). In Table 20 an overview of the data can be found.

Less than 40% of the orders are delivered on time in Sarandi, which lead to a score of one on this indicator.

Table 20 Order data

Measure	Data
Orders on time	495
Orders late	959
Total orders	1454
Order on time percent	34%
Order late percent	66%
Average days an order is late	7 Days
Standard deviation of lateness	30 Days

In Table 21 there is the overview of the scores of Sarandi on the four indicators. The scores are on a five point scale, with five corresponding with 'high' and one corresponding with 'low'.

Overall the conclusion can be drawn that while Sarandi is working to improve the administrative efficiency, through the Kaizen and 5S program, at the moment it is still not optimal and there is a lot that can be improved. **The average score shows this and with the average score of 2,5 Sarandi receives a Medium rating on Administrative Efficiency.**

Table 21 Indicators administrative efficiency Sarandi

Indicator	Score
The extent to which work is well organized and progresses systematically	3
Administrative costs as a percentage of total spending	3
Percentage of administrative to workflow personnel	3
Percentage of orders delivered on time	1
Total score	Medium (2,5)

Chapter 5 Discussion

5.1 Organizational structure Sarandi summarized

In chapter four the data on the indicators of the dimensions of organizational structure can be found, in this paragraph a short summary of this data will be given.

Standardization/Formalization

Overall Sarandi tries hard to achieve a high formalization, all communication goes via email, all important documents are in IT systems and everything is documented. However the jobs themselves are not formalized/standardized and the same goes with the wages and performance appraisal of employees. This leads to a score of medium to high on the rating instrument, combined with the results from the scales this leads to the conclusion that Sarandi scores **medium to high** on the dimension standardization/formalization.

Specialization

Almost all employees have a highly specialized job and always perform the same job. There is little cross division training, meaning that most employees always perform the same job and that this is also the only job they can do. This leads to a score of medium on the rating instrument. However, on the scales Sarandi scores medium to high. Because of the use of percentages and a more precise definition of “specialist” that is used by the rating instrument this will be the rating that is used in this thesis. For a detailed explanation about this choice look at section 4.2.2. Therefore the specialization in Sarandi is rated as **medium**.

Centralization

On the scale of centralization Sarandi scores medium to high. Employees do not have a lot of freedom when implementing their tasks. Employees do not contribute to the setting of goals in the organization and almost every important decision is taken by the Board Of Directors, however the thoroughness and frequency of review procedures is average. This leads to the conclusion that Sarandi scores **medium to high** on the level of centralization.

5.2 Testing the theoretical framework

According to the framework standardization/formalization and specialization both should be high and centralization should be low (so there should be decentralization) to achieve maximum administrative efficiency.

In Table 22 the prediction of the theoretical framework regarding the administrative efficiency in Sarandi is shown. Because standardization/formalization and specialization are contributing in a positive manner to administrative efficiency the scores of Sarandi are filled in as they are: Medium to high for standardization/formalization and medium for specialization. Since the score is on a scale from 1 to 5 with one being low and five being high this results in a score of 4 respectively 3. The theoretical framework shows that centralization contributes negatively to administrative efficiency. Therefore centralization is a reverse item and its rating of medium to high is converted into a rating of low to medium resulting in a score of 2. These scores are then added and averaged resulting in a rating of medium with a score of 3.

Table 22 administrative efficiency predicted by the framework

Dimension of organizational structure	Rating	Score
Standardization/Formalization	Medium to high	4
Specialization	Medium	3
Centralization	Low to medium*	2*
Overall administrative efficiency	Medium	3

*Note: inverted score

In paragraph 4.4 an assessment of the current administrative efficiency in Sarandi is made. The assessment of the current situation states that the level of administrative efficiency at Sarandi is 'medium' with a score of 2.5.

This shows that, with only a slight deviation, the model correctly predicted the level of administrative efficiency.

Several possible causes for the slight deviation of the prediction of the model and the current situation can be given.

5.2.1 Causes of deviation from prediction

Firstly because the current theoretical framework does not keep cultural differences in mind. The theoretical framework is based on existing literature, which is of mostly western origin. It is possible that in Asia and more specifically, Indonesia there are certain cultural differences with western cultures that make that the dimensions of organizational structure have a different influence on administrative efficiency.

Secondly, not only does the culture in Indonesia differ a lot from the culture in western countries, also is the dominant religion in the country different: the Islam. It could be possible that the religious views of the employees also make that the dimensions of organizational structure have a different influence on administrative efficiency. However, research shows that while religion plays a big part in the daily life, the impact on daily business practices is limited (Khilji, 2001).

The third cause could be that external factors not predictable by the framework affect the organization. For example, one of the used indicators of administrative efficiency is the percentage of orders that is delivered on time. In the case of Sarandi, this is a very low percentage and hence Sarandi gets a low score, which contributes to an overall lower score. However one of the reasons that many of the orders of Sarandi are late is because Sarandi does not get the necessary components from the subcontractors on time. While it is open for discussion if being able to cope with ambiguous circumstances is a trait of administrative efficiency, it is never possible to cover all possible events that might happen with regard to external factors.

Chapter 6 Conclusion

6.1 Conclusion

The three dimensions, standardization/formalization, specialization and centralization were combined in a framework. The framework predicted that standardization/formalization and specialization will contribute in a positive manner to administrative efficiency. For the dimension of centralization this was exactly the opposite, higher levels of centralization lead to lower administrative efficiency.

The theoretical framework almost exactly predicted the level of administrative efficiency in the company by using the three dimensions of organizational structure as input. This leads to the conclusion that the stated contributions of the dimensions of organizational structure to administrative efficiency are correct.

The development of the rating instrument to assess the dimensions of organizational structure has paid off. The existing scales by Pugh et al. (1968) measure the dimensions in an absolute way. The scales focuses on the presence of pre-specified characteristics per dimension. The rating instrument works in a more dynamic way, by focusing on proportions (of e.g. the number of specialized employees as a percentage of total employees).

Furthermore is the rating instrument a much quicker way to assess the dimensions of organizational structure; it exists of only 16 items compared to about 170 items in the scales that need to be evaluated. This makes the rating instrument suited to quickly evaluate a company on the dimensions of organizational structure.

The low score of Sarandi on administrative efficiency shows that there still is room for improvement. The dimension that could be used to improve the administrative efficiency the most is centralization, which at the moment is shown to have only a low to medium contribution to administrative efficiency. Specialization which is at a medium level could also be increased and standardization/formalization is already at a medium to high level and therefore need the least amount of improvement.

6.2 Theoretical implications

The dimensions standardization and formalization were shown to be very similar to each other and they were treated as one dimension in this thesis. The dimensions configuration and flexibility were shown to have no relation with administrative efficiency and they are difficult to observe. The implication is that future research should not focus on these two dimensions and concentrate the efforts on the remaining three dimensions of organizational structure.

Also shown in this thesis is that the scales used by Pugh et al. (1968) to measure the dimensions of organizational structure can be improved. When compared to the rating instrument created in this thesis the ratings given by the scales and rating instrument on the dimension specialization did not match. The mismatch was caused by the way the scales measure the specialization. The scales measure in an absolute way if there are specialists in a company instead of the dynamic approach of the rating instrument which looks at the percentage of specialists working in a company. The dynamic approach gives a more fair score because it looks at the entire workforce instead of looking if there are certain functions which have a specialized person and ignoring all the other employees.

6.3 limitations

The theoretical framework in chapter two predicts in what way the dimensions of organizational structure contribute to administrative efficiency. This framework can be used to maximize the administrative efficiency, however blindly adjusting the dimensions of organizational structure to achieve higher administrative efficiency may have unwanted side effects that need to be taken into consideration.

A high level of formalization and standardization will contribute to administrative efficiency and without a minimum level of it, role ambiguity may occur. However, when there is too much formalization and standardization boredom, job dissatisfaction, alienation, absenteeism, and low output will occur. Dalton et al. (1980) suggests that there might be a curvilinear relationship for the optimal level of formalization and standardization which balances between the two extremes. Concluding, a company should make a careful consideration about the levels of formalization and standardization which it aims for, because the best level will depend on the circumstances.

According to literature a high level of specialization will contribute to administrative efficiency, however Argyris (1957) and Forehand & Gilmer (1964) warn that when there is too much role specialization employees will tend to feel frustrated because their self-actualization will be blocked, they will tend to experience failure, they will tend to have a short-time perspective. So in every situation it might not always be in the best interest of the company to strive for high role specialization. For example in a machine bureaucracy which is involved in mass production high levels of specialization might be preferred, whereas in a professional bureaucracy in the service industry with mainly high skilled employees it might not be a good fit.

Also, as stated before in section 6.4.2, the theoretical framework does not take the cultural differences into account. Literature recommends a high level of decentralization for achieving higher levels of administrative efficiency, however due to the culture in Indonesia a certain level of centralization is necessary, because employees expect and appreciate guidance in doing their tasks.

6.4 Future research

As can be seen in the limitations, there are several aspects that are of interest for further research.

The theoretical framework is only preliminary validated in this research against one company. Further research is necessary to confirm whether the theoretical framework works as an accurate predictor of the administrative efficiency in a company. The same applies to the rating instrument, it is only tested in one company. Further research is necessary to confirm whether this instrument accurately assess a company on the dimensions of organizational structure.

Another interesting topic for future research is to look not only at what the dimensions of organizational structure can do for administrative efficiency, but also at how they influence the company in other ways. Current research focuses on the relationship with administrative efficiency, but as already stated in limitations, the optimum level might not be to maximize standardization/formalization and specialization, because other unwanted effects could occur.

The current research is based on literature from western, industrialized countries. While the theoretical framework seemed to accurately predict the administrative efficiency at a company in Asia, more research is needed whether adaptations for different countries and cultures are necessary.

Chapter 7 Recommendations

7.1 Formalization/Standardization

As can be seen in section 4.1, the formalization/specialization at Sarandi is at a medium to high level. According to the literature, the best practice for Sarandi is to increase the formalization/standardization to a higher level in order to attain higher administrative efficiency.

At the moment Sarandi already tries to increase its formalization/standardization by the introduction of the Kaizen program in 2008. However this not enough, the most important points for improvement are stated in the following paragraphs.

It is recommended for Sarandi to work on creating clear, formalized task descriptions. At the moment there are no clear descriptions of the tasks that employees have to do. This leads to inefficiencies because when an employee leaves the company and is replaced, the knowledge he has will leave the company and his successor will not know what to do. To avoid this, to keep the knowledge in the company and to make it easier for new employees to learn their tasks, this knowledge should be formalized.

Other than formalizing the task descriptions, Sarandi could also work on formalizing the skill sets of employees, so that in the future it is clear which employee has which skills. Sarandi should keep a record of all the trainings that its employees follow and all the skills they learn on the job. A way to do this would be by implementing an e-HRM system which can keep track of the skill sets of the employees and can contain descriptions of all the tasks the employees perform.

To attain a higher level of formalization it is recommended to start creating a more formalized system for performance appraisal. At the moment there is no formalized model for performance appraisal, which gives a subjective impression of the way the wages are established for the employees. When the performance appraisal system is (more) formalized, this will make it clear for employees what they can expect as salary and it will become easier and more efficient for HR to determine the wage of an employee.

Another point of recommendation is to make the production process not only more formalized, but also more standardized. At the moment every employee can do the steps of the production process in his or her own way and there is a lot of difference in the time that employees take to complete a task. There should be a list with standard times that a step in the production process should take. Also if there is more standardization it is easier for a supervisor to check whether an employee is working or just stalling the process in order to get more overtime work.

On a more general level, Sarandi should keep up the work with going towards a more formalized and standardized workplace. At the moment Sarandi has a very wide range of products it produces and many orders are custom orders. It is advised to try to decrease this variation and make the production process more standardized.

7.2 Specialization

In section 4.2 it can be read that the specialization at Sarandi is at a medium level. According to the literature, the best practice would be to have a high level of specialization, so Sarandi has to increase its level of specialization in order to achieve a high level of administrative efficiency.

For Sarandi to gain higher levels of specialization, e-HRM can be used to help reach this goal. Because e-HRM can be used to formalize and standardize the production process, when this has been done tasks are clearly defined. When the tasks are clearly defined this makes it possible to create jobs that are more specialized and narrowed down and thus increase the specialization.

At the moment Sarandi is already working to increase the level of specialization. Sarandi is working on implementing a production line for the assembly process, which will further specialize the jobs of the assembly personnel. This is a step in the right direction, because this not only increases the level of specialization, it also makes it easier to formalize and standardize the work of the assembly personnel at Sarandi and thus will help to increase administrative efficiency in multiple ways.

7.3 Centralization

As stated in section 4.3, the level of centralization in Sarandi is medium to high. According to literature, the best practice would be to have a low level of centralization. So at the moment there is a big gap between the current level of centralization and the level of centralization that is best practice according to literature. Because this dimension has the biggest gap between the current situation and the best practice of the three dimensions, it is of importance that Sarandi works to lower the level of centralization in order to increase administrative efficiency.

At the moment in Sarandi, for almost every decision approval from the Board Of Directors is necessary. The reason for this current situation at Sarandi is that because of the rapid growth of the company in the past years, the company itself had no time to adjust and decentralize its decision making system. However Sarandi has recognized this and is making plans at the moment for decentralization of the decision making. Sarandi wants to do this by setting up subsidiaries that are responsible for certain product lines and are completely independent. This can be supported by adopting e-HRM, as with e-HRM employees do not have to be in the same location in order to work together (Shilpa & R., 2011). Also does the usage of IT help with decentralization of the execution and operations and is the usage of e-HRM systems perceived as useful (Ruël & Bondarouk, 2004; Bondarouk, Engbers, & Horst, 2009).

Another thing that Sarandi could do to improve decentralization is to involve employees more in the making of decisions and future plans for the company is by hosting an open forum. The open forum should be held on a regular basis in which employees can ask anything they like and are asked for their opinion on matters concerning the future plans of the company. E-HRM can help Sarandi decentralize in this way, by providing a digital platform for employees to be involved in decision making and the making of future plans. This way the barriers for participation of employees are much lower than in a real life forum, also is it possible to make the system anonymous to further lower the participation barrier.

References

- Adler, P., Goldoftas, B., & Levine, D. (1999). Flexibility versus Efficiency? A case study of model changeovers in the Toyota production system. *Organization Science, Vol. 10, No. 1*, pp. 43-68.
- Aiken, M., & Hage, J. (1966, Aug). Organizational Alienation: a comparative analysis. *American Sociological Review, Vol. 31, No. 4*, pp. 497-507.
- Argyris, C. (1957, Jun). The individual and organization: some problems of mutual adjustment. *Administrative Science Quarterly, Vol. 2, No. 1*, pp. 1-24.
- Beck, E. M., & Betz, M. (1975). A comparative analysis of organizational conflict in schools. *Sociology of Education, Vol. 48*, pp. 59-74.
- Bider, I. (2008, October 3). *Evaluating and improving quality of administration*. Retrieved March 11, 2012, from IbisSoft: <http://www.ibissoft.se/whitepapers/admquality.pdf>
- Bieze, M., & Jongejan, J. (2006). *Improving the Organizational Performance - PT. Sarandi Karya Nugraha*. Enschede.
- Bondarouk, Engbers, & Horst, T. (2009). Exploring Perceptions about the Use of e-HRM Tools in Medium Sized Organizations. In Bondarouk, Ruel, Guiderdoni-jourdain, & Oiry, *Handbook of Research on E-Transformation and Human Resources Management Technologies: Organizational Outcomes and Challenges* (pp. 304-323).
- Bondarouk, T. (2006, February). e-HRM is volop in ontwikkeling: in onderzoek en praktijk. *BKtrends*, pp. 30-32.
- Burns, T., & Stalker, G. (1961). *The Management of Innovation*. Londen: Travistock.
- Carrig, K. (1997). Reshaping Human Resources for the next century - lessons from a high flying airline. *Human Resource Management, 36*, pp. 277-289.
- Child, J. (1972). Organization Structure and Strategies of Control: A Replication of the Aston Study. *Administrative Science Quarterly, Vol. 17, No. 2*, pp. 163-177.
- Child, J. (1973a). Predicting and understanding organization structure. *Administrative Science Quarterly, Vol. 18, No. 2*, pp. 168-185.
- Child, J. (1973b). Strategies of control and organizational behavior. *Administrative Science Quarterly*, pp. 1-17.
- CIA - The World Factbook. (n.d.). Retrieved May 30, 2012, from <https://www.cia.gov/library/publications/the-world-factbook/>
- Dalton, D., Todor, W., Spendolini, M., Fielding, G., & Porter, L. (1980). Organization structure and performance: a critical review. *The Academy of Management Review, Vol. 5, No. 1*, pp. 49-64.
- Dunsire, A. (1973). *Administration: the word and the science*. London: Martin Robertson & Company

Ltd.

- Evans, R., & Davis, W. (2005). High-Performance work systems and organizational performance: the mediating role of internal social structure. *Journal of Management, Vol 31., No. 5*, pp. 758-775.
- Ferdows, K., & Meyer, A. d. (1990). Lasting improvements in manufacturing performance. *Journal of Operations Management, Vol. 9*, pp. 168-184.
- Forehand, G. A., & Von Haller, G. (1964). Environmental variation in studies of organizational behavior. *Psychological Bulletin, Vol 62(6)*, pp. 361-382.
- Friedmann, G. (1961). *The anatomy of work : the implications of specialization*. London: Heinemann.
- Gooding, R., & Wagner, J. (1985). A Meta-Analytic Review of the Relationship between Size and Performance: The Productivity and Efficiency of Organizations and Their Subunits. *Administrative Science Quarterly, Vol. 30, No. 4*, pp. 462-481.
- Grinyer, P., & Yasai-Ardekani, M. (1980). Dimensions of organizational structure: a critical replication. *The Academy of Management Journal, Vol. 23, No. 3*, pp. 405-421.
- Hage, J. (1965). An Axiomatic Theory of Organizations. *Administrative Science Quarterly, Vol. 10, No. 3*, pp. 289-320.
- Hage, J., & Aiken, M. (1967, Jun). Relationship of centralization to other structural properties. *Administrative Science Quarterly, Vol. 12, No. 1*, pp. 72-92.
- Hall, R., Johnson, N., & Haas, E. (1967). Organizational size, complexity and formalization. *American Sociological Review, Vol. 32, No. 6*, pp. 903-912.
- Harrison, F. (1974). The Management of Scientists: Determinants of Perceived Role Performance. *The Academy of Management Journal, Vol. 17, No. 2*, pp. 234-241.
- Inkson, J. H., Hickson, D. J., & Pugh, D. (1968). Administrative reduction of variance in organization and behavior. *Unpublished paper given to the British Psychological Society, Annual Conference, April*.
- Inkson, J. H., Pugh, D. S., & Hickson, D. J. (1970). Organization context and structure: an abbreviated replication. *Administrative Science Quarterly, Vol. 15, No. 3*, pp. 318-329.
- Khilji, S. E. (2001). Human resource management in Pakistan. In P. B. Yaw, *Human Resource Management in Developing Countries*. London: Routledge.
- Lesko, A. (1998, July 31). *Administrative Quality Best Practices*. Retrieved March 11, 2012, from Sematech: <http://www.sematech.org/docubase/document/3436bxfr.pdf>
- Lewin, A., Morey, R., & Cook, T. (1982). Evaluating the administrative efficiency of courts. *Omega, Vol. 10, Issue 4*, pp. 401-411.
- Luke, R. A., Block, P., Davey, J. M., & Averch, V. R. (1973). A structural approach to organizational

- change. *Journal of Applied Behavioral Science*, Vol. 9, pp. 611-635.
- Marudas, N. (2004). Effects of nonprofit organization wealth and efficiency on private donations to large nonprofit organizations. In P. Copley, *Research in Governmental and Nonprofit Accounting*, vol. 11 (pp. 71-91). Elsevier.
- Miles, Snow, Meyer, & Coleman. (1978). Organizational strategy, structure and process. *The Academy of Management Review*, Vol. 3, No. 3, pp. 546-562.
- Miller, D. (1988, Vol. 31, No. 2). Relating Porter's Business Strategies to Environment and Structure: Analysis and Performance Implications. *Academy of Management Journal*, pp. 280-308.
- Mintzberg, H. (1979). *The Structuring of Organizations*. Englewood Cliffs, NJ: Prentice-Hall.
- Mintzberg, H. (1980). Structure in 5's: a Synthesis of the Reserach on Organization Design. *Management Science*, Vol. 26, No. 3, pp. 322-341.
- Mintzberg, H. (1989). The effective organization: forces and forms. *Sloan Management Review*, pp. 54-67.
- Ouchi, W., & Dowling, J. (1974). Defining the Span of Control. *Administrative Science Quarterly*, Vol. 19, No. 3, pp. 357-365.
- Oxford Dictionaries. (2010). *Administration*. Retrieved March 22, 2012, from Oxford Dictionaries: <http://oxforddictionaries.com/definition/administration?q=adminISTRATION>
- Payne, R. L., & Pheysey, D. C. (1971). G. G. Stern's Organizational Climate Index: A reconceptuallization and Application to Business Organizations. *Organizational Behavior and Performance*, Vol. 6, pp. 77-98.
- Payne, R., & Mansfield, R. (1973, Dec). Relationships of perceptions of organizational climate to organizational structure context and hierarchical position. *Administrative Science Quarterly*, Vol. 18, No. 4, pp. 515-526.
- Pennings, J. M. (1976). Dimensions of organizational influence and their effectiveness correlates. *Administrative Science Quarterly*, Vol. 22, pp. 688-699.
- PT. Sarandi Karya Nugraha. (2012, May 11). Company Presentation. Sukabumi, Indonesia.
- Pugh, D. S. (1973). The Measurement of Organization Structures. In M. J. Handel, *The Sociology of Organizations: Classic, Contemporary, and Critical Readings* (pp. 19-34). SAGE.
- Pugh, D. S., Hickson, D. J., Hinings, C. R., Macdonald, K. M., & Turner, C. (1963). A conceptual scheme for organizational analysis. *Administrative Science Quarterly*, Vol. 8, No. 3, pp. 289-315.
- Pugh, Hickson, Hinings, & Turner. (1968). Dimensions of organization structure. *Administrative Science Quarterly*, Vol. 13, No. 1, pp. 65-105.
- Qualitative Research Guidelines Project. (2006, July). *Semistructured interviews*. Retrieved 08 20, 2012, from Qualitative Research Guidelines Project: <http://www.qualres.org/HomeSemi->

3629.html

- Reimann, B. (1975). Organizational Effectiveness and Management's Public Values: A Canonical Analysis. *The Academy of Management Journal*, Vol. 18, No. 2, pp. 224-241.
- Ruël, H., & Bondarouk, T. (2004). E-HRM: Innovation or irritation. An explorative empirical study in five large companies on web-based HRM. In *The European IS Profession in the Global Networking Environment*. Turku: Turku School of Economics and Business Administration.
- Ruel, H., Bondarouk, T., & Looise, J. K. (2005). Innovatief human resource management door ICT; e-HRM als hoop of vrees? In *Jaarboek ICT en Samenleving. Kennis in netwerken*. (pp. 82-96). Amsterdam: Boom.
- Schneider, A. (2003). Decentralization: Conceptualization and Measurement. *Comparative International Development*, Vol. 38, No. 3, pp. 32-56.
- Shilpa, V., & R., G. (2011). The implications of implementing electronic human resource management (e-hrm) systems in companies. *Journal of Information Systems and Communication*, pp. 10-29.
- Simon, H. (1946). The proverbs of administration. *Public Administrative Review*, Vol. 6, No. 1, pp. 53-67.
- Simon, H. (1947). *Administrative Behavior a Study of Decision-Making Processes in Administrative Organization*. New York: The Macmillan Co.
- Sorensen, P. F., & Baum, B. H. (1975). Organizational control and effectiveness in a voluntary organization. *Journal of Social Psychology*, Vol. 95, pp. 125-126.
- Tannenbaum, A. S. (1961). Control and effectiveness in a voluntary organization. *The American Review of Sociology*, Vol. 67, pp. 33-46.
- The World Bank. (n.d.). Retrieved May 30, 2012, from <http://data.worldbank.org>
- Verlag. (2000). *Economic Benefits of Standardization*. DIN German Institute for Standardization.
- Walsh, J., & Dewar, R. (1987). Formalization and the organizational life cycle. *Journal of Management Studies* 24:3, pp. 215-231.
- Weber, M. (1947). *The Theory of Social and Economic Organization*. London: Collier Macmillan Publishers.
- Westrik, R. (2009). *Improving employee motivation through HR practices at PT. Sarandi Karya Nugraha*. Enschede.

Appendix 1 Scales from Pugh et al. (1968)

Table 1 score on standardization scale

Standardization	Item	Item scoring	Score	Max Score
Inspection				
	Frequency	0-none, 1-haphazard, 2-random sample, 3-100 %	3	3
	Range	0-none, 1-some, 2-all, 3-all	3	3
	Method	0-none, 1-visual, 2-attributes, 3-measurement	3	3
	Type	0-none, 1-one of raw materials process or final inspection, 2-process + final inspection, 3-raw materials + process + final inspection	3	3
	Special inspection process, e.g. statistical quality control	0-not existent, 1-exists	1	1
Stock control				
	Stock taking	0-never taken, 1-yearly, 2-semiannually, 3-quarterly, 4-monthly, 5-weekly, 6-daily	1	6
Operational control				
	Firm plans	0-1 day, 1-week, 2-month, 3-quarter, 4-year, 5-over one year, 6-permanent	4	6
	Scheduling	0-as needed, 1-monthly, 2-weekly, 3-daily, 4-continuous	2	4
	Progress checking	0-none, 1-irregular, 2-regular	2	2
	Maintenance	0-no procedure, 1-breakdown procedure, 2-mixed, 3-planned maintenance, 4-programmed replacement	3	4
Financial control				
	Type	1-whole firm, 2-job costing, 3-budgeting, 4-standard costs, 5-marginal costs	3	5
	Range	1-whole firm, 2-one product, 3-some products, 4-all products, 5-all activities	1	5
	Comparison with budgets	0-none, 1-yearly, 2-half-yearly, 3-quarterly, 4-monthly, 5-weekly, 6-continually	1	6
People: control				
	Definition of operative's task	1-custom, 2-apprenticeship or profession, 3-manuals, 4-rate fixing, 5-time study, 6-work study, 7-work study and task description	3	7

Work study	0-none, 1-some direct workers, 2-all direct workers, 3-all direct workers + operatives e.g. maintenance etc. 4-all direct workers + operatives + clerks	1	4
Job evaluation		1	1
Discipline	set offenses	1	1
Discipline	set penalties	1	1
Discipline	procedure for dismissing staff	1	1
Salary and wage review	0-not existent, 1-exists	1	1
Personal reports by supervisors	0-not existent, 1-exists	1	1
Staff establishment	0-not existent, 1-exists	1	1
Labor budgets	0-not existent, 1-exists	1	1
Communication			
Decision seeking	0-as needed, 1-semistandardized, 2-standardized, 3-project justification	2	3
Decision conveying	0-as needed, 1-semistandardized, 2-standardized, 3-project justification	2	3
Ideas			
Research and development	0-none, 1-development as needed, 2-development department, 3-development program, 4-research and development department, 5- research and development program	4	5
Obtaining ideas	0-5 number of the following that the organization does: conference attending (yes), conference reporting (yes), periodicals circulation, periodicals reporting, suggestion scheme	2	5
Materials			
Ordering procedures	0-as needed, 1-production plans, 2-datum stocks	1	2
Buyers authority over what to buy	buyer has authority to do so	1	1
Buyers authority over whom to buy from	buyer has authority to do so	0	1
Buyers authority over how much to buy	buyer has authority to do so	0	1
Procedure for buying non standard items	0-not existent, 1-exists	1	1
Procedure for notifying head office of purchases	0-not existent, 1-exists	1	1
Bidding procedure	0-not existent, 1-exists	0	1
Contracts procedure	0-not existent, 1-exists	0	1

People: recruiting				
	Promotion procedure	1-as needed, 2-grade + qualification, 3-internal advertisement and selection	2	3
	Selection of operative	1-interview by superior, 2-interview by personnel officer, 3-grading system or interview board, 4-testing procedure, 5-outside appointer	3	4
	Selection of foremen	as for selection of operatives	3	4
	Selection of executive	1-interview by superior, 2-interview by personnel officer, 3-grading system or selection board, 4-outside appointer	3	4
	Recruitment policy	0-not existent, 1-exists	1	1
	Central recruiting procedure	0-not existent, 1-exists	1	1
	Central interviewing procedure	0-not existent, 1-exists	1	1
	Standard procedure for getting increases in staff	0-not existent, 1-exists	0	1
	Standard procedure for getting increases in works	0-not existent, 1-exists	0	1
People: training				
	Apprenticeships		1	1
	Day release	that is, operators and managers allowed to attend courses at a technical collega for one day in each week	0	1
	Operator training	0-not existent, 1-exists	1	1
	Evening classes encouraged	0-not existent, 1-exists	1	1
	Courses arranged for management	0-not existent, 1-exists	1	1
	Courses arranged for supervision	0-not existent, 1-exists	1	1
	Management trainees	0-not existent, 1-exists	1	1
	Graduate apprentices	0-not existent, 1-exists	1	1
	Block release	that is, managers allowed to attend courses outside the organization for a specified period, full time	0	1
Activities				
	House journals	0-none, 1-irregular, 2-regular	0	2
	Ceremonies	0-none, 1-irregular, 2-regular	2	2
	Trademarks	0-not existent, 1-exists	1	1
	Sports and social activities	0-none, 1-irregular, 2-regular	2	2

Participation in displays and exhibitions	0-none, 1-irregular, 2-regular	2	2
Conference attendance	0-none, 1-irregular, 2-regular	2	2
Induction courses	0-no employees, 1-few, 2-many, 3-all	3	3
Handbooks provided for employees	0-for none, 1-for few, 2-for many, 3-for all	3	3
Uniforms provided for employees	0-for none, 1-for few, 2-for many, 3-for all	3	3
Sales			
Catalog	0-none, 1-giving products, 2-as in 1 + giving prices of standard products, 3-as in 2 + subject to regular review, 4-as in 3 + giving price of nonstandard products, 5- as in 4 + giving delivery times	1	5
Sales policy	1-general aims, 2-some specific aims, 3-sales policy	1	3
Marketing research	0-contracts with existing customers, 1-circularizing existing customers, 2-circularizing potential customers, 3-systematic market research or market intelligence, 4-market research involving highly specific assessment of customers	0	4
Miscellaneous			
Personnel reports and statistics	0,1,2,3,4,5-number of areas covered from among: sickness (yes), timekeeping (yes), absence (yes), labor turnover, accidents	3	5
Operations research	0-not existent, 1-exists	0	1
Central discipline procedure	0-not existent, 1-exists	1	1
Total score of Sarandi		101	
Maximum possible score			163

Table 2 scores on formalization scale

Item	Score	Max score
Written contract of employment (includes legal contract, formal letter of appointment and terms of engagement or rules signed by employee)	1	1
Do employees have handbooks	1	1
Types of handbook	1	1
Organization chart	1	1
Written operating instructions available to direct worker	0	1
Written terms of reference or job descriptions	1	1
Manual of procedures or standing orders	0	1
Written policies (excluding minutes of governing bodies)	0	1
Workflow ("production") schedules or programs	1	1
Research programs or reports	1	1
Management approval in writing required for certain decisions	1	1
Suggestion scheme	0	1
Memo forms	1	1
Notification of engagement of direct workers	1	1
Minutes for senior executive meeting	1	1
Conference reports	1	1
Agenda for senior executive meeting	1	1
Agenda for workflow (production) meeting	1	1
Minutes for workflow (production) meeting	0	1
Written reports submitted for workflow (production) meeting	1	1
Welfare documents for direct workers on engagement	1	1
Dismissal form or report recording or communicating the dismissal	1	1
House journal	0	1
Record of inspection performed (e.g. report, certificate, quality card, etc. recording both positive and negative results, not merely a rejection slip)	1	1
Work assesment record	1	1
Record of maintenance performed on workflow equipment	1	1

Record of direct workers work	0	1
Record of direct workers time	1	1
Document stating tasks done or to be done on unit of output (batch docket, route tickets etc.)	1	1
Petty cash voucher, authorizing and/or recording petty expenditure	1	1
Written application for or sanction against spending 1000 pound or more	1	1
Requisition for engagement of direct worker	0	1
Application or engagement form for direct worker	0	1
Frequency of records of direct worker's work	0	1
Appeal form against dismissal	1	1
Document identifying units of output (e.g., batch cards, work tickets etc.)	1	1
Dispatch note communicating unit of output	1	1
Written trade union procedures for negotiation, raising grievances etc.	1	1
Written history of the organization	1	1
Total score of Sarandi	29	
Maximum possible score		39

Table 3 score on specialization scale

Item	Explanation	Score	Max score
Public relations and advertising	Develop, legitimize and symbolize the organization's charter	1	1
Sales and service	Dispose of, distribute and service the output	1	1
Transport	Carry outputs and resources from place to place	1	1
Employment	Acquire and allocate human resources	1	1
Training	Develop and transform human resources	1	1
Welfare and security	Maintain human resources and promote their identification with the organization	0	1
Buying and stock control	Obtain and control materials and equipment	1	1
Maintenance	Maintain and erect buildings and equipment	1	1
Accounts	Record and control financial resources	1	1
Production control	Control workflow	1	1

Inspection	Control quality of materials and equipment and outputs	1	1
Methods	Asses and devise new ways of producing output	0	1
Design and development	Devise new outputs, equipment and processes	1	1
Organization and methods	Develop and carry out administrative procedures	0	1
Legal	Deal with legal and insurance requirements	0	1
Market research	Acquire information on operational field	0	1
Total score of Sarandi		11	
Maximum possible score			16

Table 4 score on centralization scale

Item	Score	Max score
Labor force requirements	2	5
Appointments to direct worker jobs	2	5
Promotion of direct workers	2	5
Representing the organization in labor disputes	5	5
Number of supervisors	5	5
Appointment of supervisory staff from outside the organization	5	5
Promotion of supervisory staff	5	5
Salaries of supervisory staff	5	5
Spending of unbudgeted or unallocated money on capital items	5	5
Spending of unbudgeted or unallocated money on revenue items	5	5
Selection of type or brand for new equipment	5	5
Overtime to be worked	2	5
Delivery dates or priority of orders	2	5
New product or service	5	5
Marketing territories to be covered	4	5
Extent and class of market (operational field) to be aimed for	5	5
Costing; i.e., to what costing sytem, if any, will be applied	4	5
Inspection; i.e., to what items, processes, etc. the inspection system, if any, will be applied	2	5

Operations that will have work studies made of them	3	5
Plans to be worked on	2	5
Outputs to be scheduled against given plans	2	5
Dismissal of operative	5	5
Dismissal of supervisor	5	5
Methods of personnel selection	2	5
Training methods	3	5
Buying procedures	3	5
Suppliers of materials to be used	5	5
Methods of work to be used (not involving expenditure); i.e., how a job is done	2	5
Machinery or equipment to be used for a job	1	5
Allocation of work among available workers	1	5
Welfare facilities to be provided	5	5
Price of the output	5	5
Altering responsibilities or areas of work of functional specialist departments	4	5
Altering responsibilities or areas of work of line department	4	5
Creation of a new department (functional specialist or line)	5	5
Creation of a new job (functional specialist or line, of any status, probably signified by a new job title)	5	5
Who takes over in the chief executive's absence	5	5
Total score of Sarandi	137	
Maximum possible score		185

Appendix 2 interview transcripts

Interview with Head Human Resources Department

21-05-2012

Standardization/formalization

In Sarandi there are rules, which are company regulation and management policy. Procedures are written down and filed. The source of the formalization comes from company regulation, government regulation and ISO standards.

All information is documented in hard and soft copy. All documents have to be signed by the management and almost all documents are archived in an IT system.

Employees have to do what is defined in their job description, the head of division is more flexible. Just like the office staff: as long as the goal is reached the employee can do it in his or her own way. Each supervisor is responsible for monitoring whether the subordinate violated company policy or not. If a subordinate violates company policy the supervisor will report it to HRD and HRD can punish them according to company policy. Also do the employees get coaching time, HRD will talk with them and ask why they did what they did. Every employee gets an obliged coaching session once a year. Not many employees break the rules, only sometimes they are late for work (2 persons every month). Every two year a new rulebook is being handed out to the employees.

All the jobs are described and written down, some divisions are quite new and do not have a description in the IT system yet (R&D). Depending on the situation employees can make their own decisions. When it comes to company policy they do not have the authority to decide. Section heads can make a decision with regard to the production process, but other than that they have no authority. They mainly have a monitoring function.

All communication is via email. The hierarchy of authority is formalized in the form of an organizational chart which hangs at every department. Also are the introduction courses for new employees highly formalized. Every new employee gets an introduction training and after a week they are rehearsed to see if they still remember the details. The wages of the employees are not formalized, there is no fixed measure. Every year the employee will receive a raise if he or she has performed well. Experience is used to determine the employee's salary.

Specialization

There are not many specialists, most of the tasks performed by operators are not very complicated and do not require specialists. All the new employees start small, but as they gain experience they will slowly start getting more responsibilities. However most employees will only do one task which is quite narrowed down. Section heads and division heads receive extra leadership training.

Centralization

Employees are free to be creative in performing their duties, as long as they comply with the company rules and achieve the goals that were set and fulfill their duties and responsibilities. At least once a year we look back whether procedures are in accordance with the conditions that exist. For example once a year we have performance evaluations for every employee. The supervisor is in charge of filling in the performance appraisal and HRD is responsible for a re-check and coaching. All important decisions are taken by the Board of Directors; when it comes to policy only management can decide. All staff members are free to provide input for setting goals for the entire organization, but the final decision remains to the management.

Interview with Head R&D

18-05-2012

Standardization/Formalization

Standardization is important. We must have a vision goal mission for the factory. Until now, about standardization: it is hard to standardize, because customers want differentiated products. Hard to choose between standardization and customer requirements. Standardization of payment to employee is not possible because there are no KPI rules. Commitment about goal vision mission is needed by management. Sarandi must make decision whether to standardize or not. Sometimes BOD is not on a single line with regard to rules or production of new products.

There are meetings with the Board of Directors and email conversations. New product development is not running well: many divisions work together, but there is no director for the marketing department and people say it is not my job. It is hard to find people who want to be responsible. Most of the time some people are absent from meetings, sometimes the same meeting is held multiple times because not all people show up. Many times there is no agenda for the meeting leading to a lack of focus.

Sarandi gets a lot of custom orders which makes it hard to standardize. A lot of time is wasted on short term changes to products to meet customer requirements. There is no good long term planning. Divisions make their own goals and focus on their own needs which means that the goals of different divisions not always match. Employees of R&D have a lot of freedom in implementing their tasks. All the jobs have to go past the division head. If a job is very difficult the division head will explain how to do it. R&D has also an administrative employee, who does the cost unit price calculations because accounting cannot do this. Only this person can do this because she is the one who has the permission from the management. When a design is finished the financial director has to give his permission. After the product has been sold Accounting will check whether the price is correct and Sarandi makes enough money from it. Sarandi does not order many items in bulk, many orders are small and on a credit with the supplier. This is because of the many special orders that require special parts. Sarandi has many rules for different aspects of the job.

It is not possible to prioritize jobs of the R&D department because everybody says that his or her order is very urgent. There is no forecasting system for orders.

Communication between departments is mostly via email, chat and meetings. The director of the company wants that communication goes on paper, so that everything is documented.

There are no clear rules for the new employee base salary. Sometimes new employees get more money than employees that already work in the company. There should be more clear rules about the height of the salary in Sarandi. It is not clear for employees what they have to do to earn a higher salary. Employees want overtime because they feel they do not get paid enough and they need the extra money. Two parameters are used for determining the pay level of an employee. The time an employee works at Sarandi and the evaluation that is held once or twice a year. The evaluation of the employees is not objective and fair because of this. If you are sick and do not have a doctor's note you get minus points on your evaluation. The division head of R&D gives extra points to his employees to balance this out.

Specialization

There are tasks like welding that only a few employees can perform. However Sarandi does not pay more for these specialists. Sometimes there is a special side project that is being completed by employees with more skill than the other employees. Sometimes these extra projects are during normal working hours, sometimes these projects are in overtime. Many tasks are being worked on

simultaneously because they have to wait for parts for other tasks. There is many variation in how long an employee takes to finish a task and it is not well documented how long the process steps take.

Centralization

There is a lot of flexibility because the procedure is not on paper for the process steps. The only really important rule is absence. A lot of attention is paid to the fact that employees should be on time, there are strict rules for this. If employees do not comply with the rules they get a warning letter. Sometimes employees will fake doctor's notes as a reason why they are late. All the important decisions are made by the Board of Directors. However sometimes there are conflicts between members of the BOD. Employees can win an award if they submit a good idea about Sarandi to the BOD.

Extra note:

Not much attention is paid to the release of dangerous gasses in the atmosphere. There should be shift changes to make sure that an employee does not stay for a whole day in the painting department and inhales a lot of bad gasses. There are many employees that quit their jobs. This is not good because it takes a lot of time and money to train new employees.

Interview with Head Production

05-06-2012

Standardization/Formalization

Sometimes employees have to make a jig, which supports production efficiency. There is no special team for making these jigs. The supervisor will give a recommendation about when it is useful to make a jig, up front the supervisor will check what it will cost to make the jig and decides. Afterwards it is checked if the performance is better and whether the quality is still good. The jig is made in a way that it is foolproof to use. Employees are trained to use the jig. There are many different jigs because there are many different parts to be made. Employees all have a specific task depending on the experience they have. A production employee does have some freedom in implementing his or her task. But because of the use of jigs there is not a whole lot of freedom.

Not many procedures and rules are written down. Talking with other departments is via email, calling and meetings. There is a special form for "corrective action" meaning that if there is a problem with production due to a wrong drawing or jig. There is a high turnover of employees at the welding section, salary might be the cause of this; they can get paid more at other companies. Safety equipment is not always worn by production personnel. The Human Resource Department (HRD) decides about the purchase of new safety equipment. For every order that is finished a paper has to be signed. The division head makes sure that employees do this. In production there is no IT system to support the process.

Specialization

In production the employees have a specific job for example an employee from drilling cannot do machining. Sometimes specific employees are trained to also work in another division. Also within the welding section there are different tasks in which employees are specialized. Also in this department some employees can do multiple tasks. Section heads receive a special training for leadership because this proves to be very difficult for them.

Centralization

If an employee does not abide the rules the division head will talk with the employee. The employee will get a warning letter and the division head will notify the HR department. This does not happen often, only a few times in a year.

Employees can give suggestions about how to improve the production process to section heads. However most of the suggestions are related to their own benefits. Suggestions for new ways to produce or improve products are not given. Sometimes section heads give tips for improvement to the division head. Problems with the production process are handled by the division head himself. He will talk with engineering to solve these problems. The average time an employee works in Sarandi is one to two year in the production department.

Interview with Factory Manager

08-06-2012

Standardization/Formalization

Sarandi follows the ISO system. In Sarandi the IT management system is made in a way that people have to follow the system instead of the system following the people. The system is mostly for documentation. The software is made by requests of employees for software with certain features. Every division requests its own software. The information in these different IT systems is not linked with each other. Sarandi is working on implementing a pull system so that it is possible to predict when an order is finished.

There are no standard operating procedures. There is no global vision of the management for the future of the company. Many decisions are made by the section head but there is no documentation of this. Section heads are not always older than operators. Not every employee has a specific task. In certain areas employees can change task. The section head will decide who will do what. E-mail is being used to communicate with other departments and there are meetings with the section heads.

Specialization

For welding, machining, painting and polishing there are specialists. Sarandi does not have any contracts to commit employees for a long term to the company. Sarandi also pays less than average, but gives free training courses to its employees. Last year Sarandi started with making jigs to make the jobs easier and employees more interchangeable. Using the jigs some process steps can be performed more than 50 percent quicker.

Centralization

There is a yearly performance appraisal. Sometimes employees will get a raise in salary determined by the director of the company if the division head and the factory manager think that he or she does a good job. This pay rise is being kept a secret from the other employees, because if they find out that the employee has got a raise they will get angry and demand one as well. This is because there is no good system for performance appraisal. Production has already experimented with a pay for performance system in which employees would get paid based on their outputs, but the results were unsatisfactory because the employees did not always record finishing a job in the system. There is only qualitative performance appraisal and no quantitative performance appraisal at the moment.

Customers service sometimes gives suggestions on how to improve products by submitting suggestions from end users of the products from Sarandi. From the employees of Sarandi there are no suggestions. Last year employees were asked to provide input on the mission and vision of Sarandi but not many good suggestions were given. It is difficult to change the ways employees work because they are used to working in a certain way and resist to change.

Appendix 3 Research inputs

Interviews

Interview with head Human Resource Department. (2012, May 21).
Interview with Factory Manager. (2012, June 8).
Interview with head Production. (2012, June 5).
Interview with head R&D Department. (2012, May 18).

Company data

Interview with head Production Planning and Inventory Control. (2012, June 14).
Interview with head Accounting department. (2012, June 12).

Scale interviews

These interviews were all conducted in the period of May 2012 to June 2012.

Interview with head Human Resource Department.
Interview with head Accounting department.
Interview with head Production Planning and Inventory Control.
Interview with head Warehouse department.
Interview with head IT department.
Interview with head Purchasing department.
Interview with head Sales department.
Interview with Secretary of the Board of Directors.
Interview with head Production department.
Interview with head ISO department.