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Impact of National and Organizational Cultures on Information System Implementation in the Shipping Industry

- A case study at a Swedish shipping company

Master's Thesis in the Master's Programme
Science, Technology and Society

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Abstract

A Swedish shipping company, called the SSC in this thesis for the sake of anonymity, initiated the implementation process of a new information system in 2016. The new system would replace seven of the organizations' old systems to increase efficiency and integration as well as simplify further digitalization of processes. The implementation was planned to be completed in 2017, but when this thesis was conducted the implementation had only reached two of the organizations' twenty vessels. Significant resistance from employees and managers had halted the implementation and the project manager and top management had previously only focused on solving technical issues. This thesis thus aimed to analyze the SSC's information system implementation with the intention of giving proposals for improvement through organizational viewpoints.

The aim of the thesis was broken down into three research questions through an analysis that connected the current situation of the organization to literature on resistance towards information system implementations. The research questions handled national culture, organizational culture, and change management. They were answered through an iterative process, where the researcher went back and forth between literature and empirical data collection, to conclude suggestions for improvements that were suitable for the organization. Empirical data was collected through interviews with eighteen employees, as well as by triangulation through observations and by utilizing assessment instruments to validate the thesis.

The analysis found several dimensions of national culture that could impact the implementation process negatively. These dimensions were connected to change management and information system implementation research to provide solutions to the negative impact. Furthermore, it was found that several subcultures were present within the company that could further hinder the implementation process. It was suggested that the organization should attempt to create a more uniform, flexible organizational culture and strategy to increase the organization's readiness for change for future change projects. The result of the thesis provided the SCC with suggestions for improvement, however, some aspects that need further investigation were presented. The aspects included a further investigation of the external and internal environment of the organization, both present and future, to aid in the decision of a suitable company strategy and culture. Furthermore, it was suggested that an investigation of the vessels that has not yet initiated the implementation was necessary as the thesis only focused on the two vessels that had initiated the implementation process.

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This Master Thesis is a part of the master degree program Management and Economics of Innovation at Chalmers University of Technology. It was conducted at the SSC, an anonymous, Swedish shipping company with the aim to aid the company's ongoing information system implementation. The thesis was conducted from January to May in 2018.

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I further want to thank the shipping company where the case study of this thesis was performed. Thank you for letting me in so close to your company, I have enjoyed every second of it. Thank you to all employees, managers, and crew members for your patience, and the information and feedback you have provided.

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1. Introduction

The chapter is initiated by a background that briefly describes the possibilities and challenges of using information systems. The company SSC is introduced, and the background then further explains the issues the company has encountered when attempting to implement a new information system. An aim of the thesis is defined and further broken down through a problem analysis into three research questions. The questions involve national culture, organizational culture and change management.

1.1. Background

Computer-based information systems have become one of the most valuable instruments when it comes to creating value for a company (Laudon & Laudon, 2014). Information systems enable higher efficiency for business processes, leading to decreased costs and higher profits. Furthermore, the information systems provide managers with increased, updated and detailed information from the company's processes, allowing them to make better, faster decisions. As companies grow, they often acquire increasingly more information systems to finally support the processes of all the major functions of the organization. After a while, many of the systems are outdated and unable to integrate with each other. Issues arise with costly maintenance and information flows that are hard to manage. Ever since the 1990s, there has been a growing need for integration between information systems, and as a result, company-wide systems and enterprise systems have emerged on the market (Magnusson & Olsson, 2012).

Enterprise systems solve the old issues with multiple, incompatible systems by using different modules for each department of the organization and connecting them by a common, central, database (Boddy et al., 2009; Cameron & Green, 2012). The company's different functional areas and business processes are thus joined into one single information system (Laudon & Laudon, 2014). The enterprise system can result in more benefits than the previous function systems, such as even more efficient business processes and management control. A successful implementation enables information availability to a higher number of employees, leading to greater staff involvement, decreased staff costs and further opens up the opportunity for more flexible working conditions (Cameron & Green, 2012). However, implementing a new system is very expensive (Laudon & Laudon, 2014), and notoriously difficult as it often requires organizational changes (Boddy et al., 2009). Laudon and Laudon (2014) describe how organizations have suffered losses and encountered big operating issues when implementing enterprise systems for not realizing the organizational change that is needed. Boddy et al. (2009), Hornby et al. (1992) as well as Ahn and Skudlark (1997) further discuss how companies that focus on adapting the organization rather than just the technology have a larger possibility of succeeding with new systems. Boddy et al. (2009) further mention that many organizations invest in information systems without ensuring that they will receive a satisfactory return on the investment.

With a starting point in the benefits and limitations of enterprise information systems, a Swedish shipping company, the SSC[1], was chosen as the case study, with the intention of generating advice for the company's ongoing enterprise system implementation. The company has 240 employees operating a tanker vessel fleet containing 20 vessels (Fleet manager, 2018-01-08). The company transports petroleum products and chemicals mostly in Europe but also in Asia. Since the start in the 1950s, the company has expanded immensely. Acquisition of other companies, development of departments and a lack of strategy for handling information systems has resulted in a total of seven different information systems — one or more for each department. A decision to implement a new enterprise system was made in 2016 in response to the issues of inefficiency, non-integration, need for updates and continued need for further digitalization of processes. The implementation process was scheduled to be completed at the end of 2017, however, the system has only been fully implemented on two of the 20 vessels and is only being used by a few employees at the company's office. The company has been preoccupied with the technical benefits of the system and has therefore neglected the organizational issues that need to be dealt with in order to reach the system's full potential.

The implementation of the new system has been halted by many hardships. The time frame has been pushed forward multiple times and the project manager for the implementation process describes difficulties with managing the project and finding support from employees and even top management (Project manager, 2018-01-08). Many of the employees are showing resistant attitudes and some are not even willing to try the new system, thinking it will be too difficult and time-consuming to learn. Furthermore, the delayed implementation has made the top management at the SSC worried that they will not receive the expected payback on the investment (Fleet manager, 2018-01-08).

1.2. Aim

The aim of this thesis is to analyze the SSC's information system implementation with the intention of giving proposals for improvement through organizational viewpoints.

1.3. Problem Analysis

To improve the implementation process for the new information system at the SSC through a focus on organizational issues, a deeper analysis of the implementation and the company's general organizational context is needed. Through the first initial analysis, the largest issue that is affecting the implementation has been detected as the visible resistance from employees towards the new information system. With a focus on this problem area, a problem analysis can be made as a starting point for reaching the aim of the thesis.

[1] The SSC is a fictional organization name as the organization has chosen to be anonymous.

1.3.1. Resistant attitudes toward information technology

Resistance from the employees has been one of the most difficult aspects of the implementation. Some employees have stormed out from education workshops for the new system and some have refused to turn up at all. One of the shore-based employees claims he's closing in on his retirement and will not have time to learn the new system before that (Superintendent B, 2018-02-12). The CEO and another shore-based employee has not yet learned how to properly use the last implemented system and shows little interest in learning about the new system. Creating a positive employee attitude and user acceptance is described as crucial by researchers when implementing information systems (Holland et al., 1999; Ahn & Skudlark, 1997; Cooper & Zmud, 1990; Nguyen, 2009). According to Motwani et al. (2002), resistance will emerge when individuals or groups believe that the occurring change is a threat to them. A useful factor when assessing employee behavior connected to information system implementation is culture (Boddy et al., 2009). Culture has a strong effect on information system projects' and organizations' failure or success. It further influences performance, external and internal relationships of an organization, employee motivation, and communication (Cameron & Green, 2012). Davenport (1998) explains that employees firstly must be able to communicate face to face to enable correct usage of electronic communication. Two disconnected research areas have surfaced in culture research - national culture and organizational culture (Leidner & Kayworth, 2006). Multinational companies that use information technology as a way to communicate effectively are often met with issues surfacing from the different national cultures of the company (Johns et al., 2003). The effect of national culture on technology adoption and information system implementation is well researched (Png et al., 2001; Thatcher et al., 2003; Leidner et al., 1999; Leidner & Kayworth, 2006; Srite & Karahanna, 2006; Keil et al., 2000; Galliers et al., 1998; Hasan & Ditsa, 1999; Kirkman & Shapiro, 2001; Calhoun et al., 2002; Lee et al., 2013; Tan et al., 2003). Multicultural shipping crews have emerged as a result of shipping companies' desire to lower their manning costs and 80% of shipping crews all over the world have thus been multicultural for the past 25 years (Theotokas & Progoulaki, 2007). The cultural differences were first seen as problematic by the shipping world and as a result, most shipping companies hired countrymen as senior officers to deal with the weaknesses of multiculturalism. A decline in the number of senior officers from European nations in the 1990s lead to today's balance between European and non-European officers on vessels. The shore-based employees at the SSC are all of Swedish descent. However, the crew onboard the vessels are from multiple different countries. Several employees that show strong resistance toward the new system notes the different national cultures as a big issue for the implementation. The presence of national culture issues need to further analyzed, thus leading to the first research question:

Q1: How does the multi-nationality of the SSC's employees affect the information system implementation?

National culture research has been criticized for being too static and for not realizing that different subcultures may exist throughout a country (Martinsons & Ma, 2009; Peppas, 2001; Martin, 1992). Moreover, Galliers et al. (1998) describe that neglect of the presence of subcultures can miss essential conflicts that arise between subcultures.

Myers and Tan (2002) point out that national culture frameworks do not take into account the aspect of work-related cultural values.

Boddy et al. (2009) explain how groups of different organizational culture react differently to information system implementation. Different departments may have different interests and views of the world, sometimes causing conflict in between departments, and contrasting views on information systems. Finney and Corbett (2007), Yousef (2000) and Rashid et al. (2004) further state that different types of organizational culture has different levels of receptiveness for change. The effect of corporate culture on information system implementations and technology adoption is well researched (Roberts & Barrar, 1992; Nguyen, 2009; Nah et al., 2001; Hooijberg & Petrock, 1993; Huang et al., 2003). Von Meier's (1999) research points to the differences in occupational culture between engineers and operators, explaining how these differences caused disagreements when appraising technology innovation. The operators found that the most important aspect of the technology was the possibility to keep the system running in real time, regardless of external turmoil, without incidents. The engineers on the other hand, valued optimization and efficiency. The SSC mentions how the culture on board the vessels has been divided into subcultures since the beginning (Fleet manager, 2018-01-08). There is a clear partition between officers and crew, captains and chief engineers. Employees at the SSC explain how those partitions has remained, even at the office (Superintendent A, 2018-01-08; Fleet manager, 2018-01-08). The employees at the HSQE (health, safety, quality and environment) department come from a captain background, and therefore show resistance towards the technical superintendents that come from a chief engineer background and vice versa. There is a lack of communication and a presence of conflicts between departments at the office as the HSQE employees do not believe that the technical superintendents care enough about safety and environment, and the superintendents believe that the HSQE employees do not have enough knowledge about the vessels. The situation affects and influence processes, decision-making, and everyday work at the office. Boddy et al. (2009) discuss that if an information system matches the employees' culture and support their beliefs, they are more likely to accept it. An analysis of the SSC's organization culture's impact on the system implementation is thus relevant, resulting in research question number two:

Q2: How do the SSC's organizational culture and possible presence of subcultures affect the information system implementation and how can it be altered in order to easier transform the organization in the future?

Finney and Corbett (2007), Bingi et al. (1999) and Nah et al. (2001) explain that building user acceptance and positive attitudes towards the implementation of a new system can be efficiently done through careful change management. Change management is considered to be one of the most critical success factors for information system implementation (Finney & Corbett, 2007; Nah et al., 2001; Mandal & Gunasekaran, 2003; Motwani et al., 2002; Somers & Nelson, 2001; Skok & Legge, 2002). Laudon and Laudon (2014) describe how many information system projects fail or face issues due to a lack of focus on the process of organizational change caused by the system building, and emphasizes that careful change management is needed in order to reach a successful system implementation. The

petroleum tanker industry that the SSC operates in is in many ways ruled by the customers — the oil companies (Fleet manager, 2018-01-08). The oil companies continuously raise their demands and requirements for hiring shipping companies to ship their cargo. One of the areas that the oil companies have placed requirements in is change management (CEO, 2018-03-20). The shipping companies need to have well-developed change management procedures when performing change projects in order to keep shipping for the oil companies. Four different levels of change management have been established by the oil companies that the shipping companies can achieve to stay ahead of their competitors. The SSC has previously reached the customers' demands in this area but wishes to reach an even higher level. The implementation efforts of the SSC has previously been emphasized on solving technical issues and the organization has not taken any action towards dealing with the resistant employees. From the issues regarding resistant attitudes from the employees and the possible solution of change management, the third research question was formed:

Q3: How can SSC through a focus on change management solve resistance issues and improve the implementation process?

2. Method

The chapter describes the methodology for the thesis. First, the research process is presented, followed by a description of the literature study and selection and collection of empirical data. Lastly, the source credibility and the generalization and contribution of the thesis is discussed.

2.1 Research Process

The thesis was initiated by sweeping interviews with the company to find the most pressing problem areas. The interviews were followed by a wide-ranging literature review to give the researcher a more comprehensive view of the subject of implementing information systems. Thereafter more detailed, specific interviews were conducted with employees of the company in order to form the aim of the thesis as well as the research questions. This iterative process, where the researcher goes back and forth between empirical and theoretical data gathering, was continued throughout the thesis and is described as an abductive method (Patel & Davidsson, 2003). Going forward, the research questions created the scope for the more detailed literature review and empirical study.

2.2 Literature Study

As mentioned in *2.1 Research Process*, the scope of the literature study was developed from the initial problem analysis. The literature study starts by handling national and organizational culture as well as the presence of subcultures. It then presents the theory for change management and connects the theory to literature on critical success factors for information system implementation to provide directions for the last research question.

The search for trustworthy and appropriate theory has been performed using Google Scholar and Chalmers Library's platform. Relevant books, reports and articles were found when searching with keywords such as: *"Critical Success Factors", "Information system implementation", "change management"*, *"organizational culture", "national culture",* and *"organizational culture in the shipping industry"*.The theory that was found most relevant to the thesis is presented in *3. Theoretical Framework.*

2.3 Selection and Collection of Empirical Data

The methodology for collecting empirical data is described in the following section. The performed interviews are described followed by observations and lastly the use of the Organizational Culture Assessment Instrument.

2.3.1. Interviews

Bryman and Bell (2011) explain that interviews can collect qualitative or quantitative data and be unstructured, semi-structured or structured. The interviews for this thesis

have been qualitative interviews done by unstructured and semi-structured nature. Qualitative interviews are seen as less structured, more flexible and in-depth than quantitative interviews (Bryman & Bell, 2007). The qualitative data was supported with quantitative data collection that was conducted by utilizing Cameron and Quinn's (2006) Organizational Culture Assessment Instrument, which will be described in section *2.3.3. Organizational Culture Assessmentt Instrument.*

For the selection of interview subjects the method described by Bryman (2008) as convenience model was used, as the company's fleet manager directed the researcher to which employees onboard the vessels and at the office that would be suitable as interview subjects. Bryman (2008) explains that convenience sample can sometimes cause biased information as a result of in-homogenous samples. The risk of biased samples was taken into consideration. However, as the fleet manager was the initiator of the thesis, the risk of biased samples was considered small enough for this method to be suitable as the fleet manager had the success of the implementation project in his best interest. The researcher furthermore expanded the number of interviewees to include detected employees that showed strong involvement in the success and lack of success for the implementation process. The interview subjects from the vessel crew were limited to crew members from the two vessels that had initiated the information system implementation. The interviews were performed face-to-face to ensure reliability (Bryman & Bell, 2007), and was further recorded to decrease the risk of biased transcripts from the interviews and for enabling the researcher to re-listen to the interviews (Easterby-Smith et al., 2015). Moreover, the interviews were performed in the interviewees' first language when possible (Swedish) and were thereafter translated to increase comfortability for the interview subjects. The interviews included the aspects of the implementation process, the company's strategy, internal and external environment, management and leadership within the company and cultural differences. The interviews are described in Table 1.

Table 1. Presents the interviewees' titles and nationality, and the date for the interviews.

Title	**Interview date**	**Nationality**
Fleet Manager	2018-01-08, 2018-01-24, 2018-02-12, 2018-03-10, 2018-03-22, 2018-04-06	Swedish
Project Manager	2018-01-08, 2018-01-24, 2018-02-12, 2018-03-19	Swedish
Superintendent A	2018-01-24, 2018-03-20	Swedish

Title	Interview date	Nationality
Superintendent B	2018-02-12, 2018-03-20	Swedish
Crewing Manager	2018-02-12	Swedish
HSQE Manager	2018-03-20, 2018-04-06	Swedish
CEO	2018-03-20	Swedish
Financial Manager	2018-03-22	Swedish
Employee A	2018-03-20	Swedish
Captain A	2018-04-04	Swedish
Chief Engineer A	2018-04-04	Filipino
Chief Officer A	2018-04-04	Swedish
Able Seaman A	2018-04-04	Dutch
Greaser	2018-04-04	Lithuanian
Second Engineer A	2018-04-10	Latvian
Second Officer A	2018-04-10	Filipino
Chief Officer B	2018-04-10	Dutch
Able Seaman B	2018-04-10	Filipino

2.3.2. Ethnography

As a complement to the interviews, a micro-ethnographic approach was used.
Ethnography is explained by Bryman and Bell (2011) as when the researcher has the possibility to become involved in the group of research, being able to closely observe, listen, as well as asking questions for a lengthy period of time. The length of this particular research was too short for a proper ethnography to be completed, however, a micro-ethnography as described by Wolcott (1995) was performed. A micro-ethnography is often chosen as the method when a specific part of an organizational culture is being closely studied for a shorter period of time (Bryman & Bell, 2011). The micro-ethnography was completed by participation in the information system workshops, listening in on discussions and observing the employees at their workplace. The ethnography enabled the researcher to identify conflicts and issues regarding the implementation process and thus detect important interview subjects as described in *2.3.1. Interviews.*

2.3.3. The Organizational Culture Assessment Instrument

As a part of the triangulation for the thesis, that will be described further in section *2.4.1. Trustworthiness*, the Organizational Culture Assessment Instrument (OCAI) presented by Cameron and Quinn (2006) was used. Cameron is a professor at the University of Michigan Business School in the field of management and organization

and his research on leadership, effectiveness, and culture has been published in more than eighty articles and nine books. Quinn holds a professorship at the University of Michigan and has published fourteen books in the research field of organizational change and effectiveness. He is known for creating the Competing Values Framework that is further explained in *3.2 Organizational Culture* and furthermore connected to the OCAI. The OCAI is a series of twenty-four statements divided into six groups where employees and managers are asked to divide one hundred points per group based on which statements they think describe their organizational culture the most. The employees and managers first rate the organization as they believe it is now, and then proceed with how they would prefer it to be in a few years to achieve maximum success. The points are then plotted and can be easily compared to spot discrepancies between departments, between preferred and actual organizational culture and between the culture and demands of the industry market. The OCAI was completed by all shore-based personnel and by crew members onboard the two vessels that had initiated the information system implementation. The results from the OCAI did not differ noteworthy between nationalities or different ranks but rather between the different departments at the office as well as the vessel crew. When plotting the results it has therefore been merged into categories of top management, HSQE, technical, accounting, crewing departments, and vessel crew. To validate the results, the statements were discussed in a group to ensure that the interview subjects had the same understanding of the statements. It was also determined that all interview subjects would consider the full organization and not their sub-units when dividing the points, to ensure that the results were comparable. The statements that were rated are presented in Table 2.

Table 2. The six groups of statements from the OCAI. Reprinted from Cameron and Quinn (2006)

1. Dominant Characteristics	**Now**	**Preferred**
A. The organization is a very personal place. It is like an extended family. People seem to share a lot of themselves.		
B. The organization is a very dynamic and entrepreneurial place. People are willing to stick their necks out and take risks.		
C. The organization is very result-oriented. A major concern is getting the job done. People are very competitive and achievement-oriented.		
D. The organization is a very controlled and structured place. Formal procedures generally govern what people do.		
Total	100	100

2. Organizational Leadership	Now	Preferred
A. The leadership in the organization is generally considered to exemplify mentoring, facilitating, or nurturing.		
B. The leadership in the organization is generally considered to exemplify entrepreneurship, innovation, or risk taking.		
C. The leadership in the organization is generally considered to exemplify a no-nonsense, aggressive, results-oriented focus.		
D. The leadership in the organization is generally considered to exemplify coordinating, organizing, or smooth-running efficiency.		
Total	100	100

3. Management of Employees	Now	Preferred
A. The management style in the organization is characterized by teamwork, consensus, and participation.		
B. The management style in the organization is characterized by individual risk taking, innovation, freedom, and uniqueness.		
C. The management style in the organization is characterized by hard-driving competitiveness, high demands, and achievement.		
D. The management style in the organization is characterized by security of employment, conformity, predictability, and stability in relationships.		
Total	100	100

4. Organization Glue	Now	Preferred
A. The glue that holds the organization together is loyalty and mutual trust. Commitment to this organization runs high.		
B. The glue that holds the organization together is commitment to innovation and development. There is an emphasis on being on the cutting edge.		
C. The glue that holds the organization together is the emphasis on achievement and goal accomplishment.		
D. The glue that holds the organization together is formal rules and policies. Maintaining a smooth-running organization is important.		
Total	100	100

5. Strategic Emphases	Now	Preferred
A. The organization emphasizes human development. High trust, openness, and participation persist.		
B. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.		
C. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant.		
D. The organization emphasizes permanence and stability. Efficiency, control, and smooth operations are important.		
Total	100	100

6. Criteria of Success	Now	Preferred
A. The organization defines success on the basis of the development of human resources, teamwork, employee commitment, and concern for people.		
B. The organization defines success on the basis of having the most unique or newest products. It is a product leader and innovator.		
C. The organization defines success on the basis of winning in the marketplace and outpacing the competition. Competitive market leadership is key.		
D. The organization defines success on the basis of efficiency. Dependable delivery, smooth scheduling, and low-cost production are critical.		
Total	100	100

2.4 Source Credibility

This section discusses the trustworthiness of the thesis and ethical considerations.

2.4.1. Trustworthiness

Trustworthiness of research can be evaluated through the thesis' validity. Validity is described by Boström (2009) as ensuring that data collection is collected, measured and used for the intended purpose. To increase the validity of this thesis, triangulation, the use of different data collecting methods, (Patel & Davidsson, 2003) was used to ensure that different perspectives and dimensions were included in the data. The results from the OCAI and interviews were cross-validated and broadened by the micro-ethnographic observations and vice versa. The thesis validity was further

strengthened from the use of both secondary and primary data. The primary data, i.e. data that has been gathered for the specific purpose of the research (Lundahl & Skärvad, 1999) was, as previously mentioned, collected through interviews, the OCAI and through ethnographic observations. The secondary data, as explained by Lundahl and Skärvad (1999) as data collected for a different purpose, was gathered from prior empirical research on the subject.

2.4.2. Ethical considerations

Bell and Bryman (2011) state ten different aspects of ethical practice that includes the protection and respect of research subjects interests, anonymity, and dignity, ensuring consent, lack of bias and accuracy of research results. The researcher has taken these aspects into consideration when performing the research. Those research subjects that have wished for anonymity has been, with consent, given a subject name only connected to their nationality and position within the company. However, most managers had no issue with anonymity and are thus mentioned by their specific position. Moreover, the company name and other delicate information have also been anonymized to minimize the risk of receiving false research results as a consequence of attempts to protect company secrets and conflicts. Furthermore, the research subjects have been made aware of the research and ensured that research results are to be seen as suggestions instead of absolute decisions for change within the company.

2.5 Generalizability and Contribution

Generalizability can be described by to what extent the findings of the research can be used in other situations and cases (William, 2006; Maxwell, 2012). For qualitative research, generalizability is often not possible as the result is based on limited purposive sampling. Therefore, the generalizability of the results from this thesis is small, but the thesis could be useful to other multicultural organizations. Moreover, the thesis establishes a connection between change management research and information system implementation research by connecting Kotter's (1996) change management theory to that of information system implementation and thus validates the use of Kotter's change management framework for information system implementation projects. Furthermore, the research contributes to the field of national and organizational culture research in the shipping industry. Few studies have been found during the extensive literature study that has been performed in this field prior to this research.

3. Theoretical framework

The chapter presents the theoretical framework of the thesis. It starts with the theory on national culture, followed by organizational culture, and ends with a final section that combines change management research to information system implementation research.

3.1 National Culture

In research on national culture and information technology, one of the most prominent notions has been Hofstede's (1983) dimensions of culture that range from individualism to collectivism, masculinity to femininity and along the axes of power distance and uncertainty avoidance[2]. The dimensions were developed out of data from over a hundred thousand individuals from 53 countries. The individuals were all employees at the same organization, IBM, which is a factor that has been critiqued but also praised as the research is not influenced by different kinds of corporate culture. The dimensions are seen as useful when analyzing differences of culture in organizations and the impact of culture on information system technology (Shanks et al., 2000; Tan et al., 2003; Lee et al., 2013; Chow et al., 2000; Leidner et al., 1999; Kirkman & Shapiro, 2001; Keil et al., 2000; Galliers et al., 1998). The masculinity/ femininity aspect has not been found to affect technology and change implementation and will therefore not be included in this thesis.

3.1.1. Individualistic/collectivistic dimension

In individualistic cultures, it is believed that every individual is responsible for him/ herself, while in collectivistic cultures people see themselves as belonging to an in-group where protection is offered in return for loyalty (Hofstede and Hofstede, 2005;2004). Collectivistic countries put the collective interests of their group or company before their individual interests. Employees in individualistic nations, on the other hand, expect work to coincide with their own personal interests. The relationships between employees and managers are seen as strictly business transactions and it is commonly accepted if an employee switches jobs for a better pay rate. Management is thought of as management of individuals. In collectivistic cultures, management is thought of as management of groups and the relationships between managers and employee are seen as resembling family bonds, with obligations of protection and loyalty.

The individualistic/collectivistic dimension is further mentioned in technology adoption research. Lee et al. (2013) describe in their research on technology adoption that people from individualistic cultures tend to individually search for information from trusted sources when evaluating the technology. Collectivistic cultures, on the other hand, were more likely to trust their peers' opinions and follow their adoption paths. Tan et al. (2003) found during their study that individualistic cultures were more likely to report bad news about IT projects than collectivistic cultures. This as

[2] This version of Hofstede's dimensions was chosen due to the amount of information system research that has been built on the 1983 dimensions.

collectivistic employees protect their group and dislike placing the group under a negative spotlight. To prevent lack of information on project issues, the managers can attempt to move the collectivistic focus from the team to the company. Collectivistic employees that see the company as a reference point will put the company's interests first and thus report bad news to a larger degree.

Chow et al. (2000) conclude that individualistic employees' willingness to share knowledge is highly related to the level of conflict between collective and individualistic interests the information is connected to. Davenport (1998) clarifies that information is power, and people are not generally willing to share it. Boddy et al. (2009) further describe that power can be a hidden cause of resistance against information systems. Power affects how employees view information system projects as the new system might alter their power in the organization. Laudon and Laudon (2014) explain how the distribution of power might change as the way information is evaluated change, further leading to resistance towards the system. Bull (2003) mentions how insecurity might emerge for employees rooted in job security. Even managers may fear for losing power and control as a cause of the new system (Macrí et al., 2001).

Hofstede and Hofstede (2005;2004) describe that individualist countries use low-context communication and vice versa. The concept of low- and high-context cultures was first described by Hall (1976). High-context countries share information in a simplistic but meaningful way, while low-context countries communicate in more precise and non-personal ways. Calhoun et al. (2002) explain that high-context cultures find information systems and the use of IT to cause information overload and thus are less likely to adopt new systems. It is therefore important that the systems do not provide more information than necessary (Leidner & Kayworth, 2006). Leidner et al. (1999) further point out that information systems fit low-context, individualistic cultures better as they tend to value the quantifiable information that is provided by the systems.

3.1.2. Power distance dimension

The power distance dimension shows how well employees and people with less power accept power inequality (Hofstede & Hofstede, 2005;2004). Cultures with large power distance tend to show fear towards disagreeing with managers and authority and thus follow orders unquestionably (Calhoun, 2002). Leidner and Kayworth (2006) agree but further explain that the following of orders comes with an expectation from employees to be trusted by their bosses. Thus, employees in large power countries tend to dislike feeling watched and checked upon as it makes them feel not trusted. In small power distance cultures, there is a wish for interdependency between managers and employees rather than a dependency of employees on managers (Hofstede & Hofstede, 2005;2004). Small power distance countries feel that inequalities between people should be minimized, whereas it is expected and desired in large power distance countries. In small power distance countries, less educated people hold more authoritarian values than more educated as opposed to large power distance cultures where both educated and non-educated people hold authoritarian values. Hasan and Ditsa (1999) explain in their research how power distance might impact technology

adoption as IT is more likely to be successfully adopted when staff is in a position to give advice and suggestions to the managers. Kirkman and Shapiro (2001) on the other hand note that small power distance can lead to higher employee resistance as employees have no issues with questioning managers and felt less pressure to conform. Shanks et al. (2000) describe the other side of the spectrum and state that people from greater power distance and collectivistic cultures required less pursuing and enthusing resources when trying to implement change.

3.1.3. Uncertainty avoidance dimension

The uncertainty avoidance dimension is defined by the way people from a certain nationality and culture deal with unknown situations (Hofstede & Hofstede, 2005;2004). Members of a culture that show strong uncertainty avoidance generally feel more anxiety, a need for rules to be followed and to have a stable job and environment. In the workplace, high uncertainty avoidance values appear through long-term employment, the belief that time is money, emotional need for rules and formalization and top management emphasis on daily operations. Low uncertainty values appear through short-term employment, time is seen as a framework for orientation, no apparent need for rules and tolerance for ambiguity, and top management emphasis on strategy.

In technology adoption research connected to uncertainty avoidance, Png et al. (2001), Thatcher et al. (2003) and Leidner et al. (1999) all come to the conclusion that higher uncertainty avoidance leads to a slower rate of adoption for new technologies. Research explains these findings by describing IT as inherently risky (Leidner and Kayworth, 2006). Furthermore, Leidner et al. (1999) discuss how high uncertainty avoidance countries might have difficulties trusting the information from information systems and thus will not acknowledge said information for decision making. Srite and Karahanna (2006) note that high uncertainty avoidance cultures follow their social environment when assessing new technology. In their experiments in Singapore, the Netherlands, and Finland, Keil et al. (2000) focused on the connection between employee commitment towards software projects and culture. They found that low uncertainty avoidance cultures' low perception of project risk led them to be more likely to push through problems and continue with a failing project than high uncertainty avoidance cultures. On the other hand, Galliers et al. (1998) note that managers from low uncertainty countries might not value accurate information enough to consider using information systems.

3.1.4. Culture in Sweden, the Philippines, the Netherlands and Baltic countries

According to Hofstede (1983), Swedish employees share high levels of individualism, small power distance, and low uncertainty avoidance. Employees from the Philippines share high levels of collectivism, large power distance, and low uncertainty avoidance. Furthermore, employees from the Netherlands and the Baltic countries, i.e. Latvia, Estonia, and Lithuania all share high levels of collectivism, small power distance, and high uncertainty avoidance. The Dutch employees have the highest level of collectivism of the mentioned countries. The Baltic scores were similar to one

another except for the Latvian collectivistic score that was higher than the scores for Estonia and Lithuania. The mentioned nationalities' scores are presented in Figure 1.

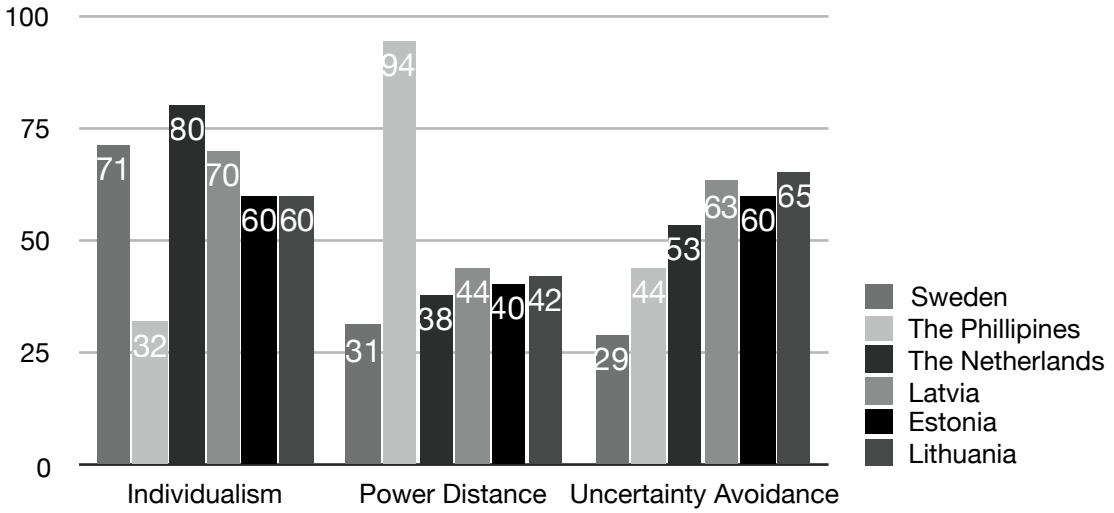


Figure 1. The culture dimension scores for Sweden, the Philippines, The Netherlands, Latvia, Estonia and Lithuania. Adapted from Hofstede (1983).

3.1.5. Multicultural vessel crews

Håvold (2007) compared Hofstede and Hofstede's (2005;2004) cultural dimension values to those of crew members onboard Norwegian flagged ships. The research concluded that crew members from individualistic countries seemed to have become more collectivistic in nature, while crew members from collectivistic cultured backgrounds had turned more individualistic. The power distance had declined while the uncertainty avoidance had increased.

3.2 Organizational Culture and Subcultures

Subcultures in organizations view the world differently, do not share the same beliefs or goals and thus assess information systems differently (Boddy et al., 2009). Huang et al. (2003) discuss how conflicts can arise between subcultures and describe how they can result in lack of information sharing, teamwork and hindered IT implementation.

Quinn and Rohrbaugh (1981) present the competing values framework that describes four different types of organizational culture. The types were worked out by organizational researchers out of frequently used criteria for assessing organizational effectiveness. Moreover, the culture types range from flexibility to control and internal to external focus as seen in Figure 2. The framework is useful for organizations that aspire to evaluate and change their organizational culture (Hooijberg & Petrock, 1993). The different cultures are developed from values that influence organizational judgment (Quinn & Cameron, 2011). Boddy et al. (2009) discuss how employee groups with these different cultures react differently to information system implementation. Employees generally support systems that further

support their culture and resist others. Furthermore, Cooper and Quinn (1993) explain the importance of different types of cultures respecting and acknowledging the values of other cultures to maintain a working organization. The culture types are presented in Figure 2 and are further discussed briefly in the next four sections.

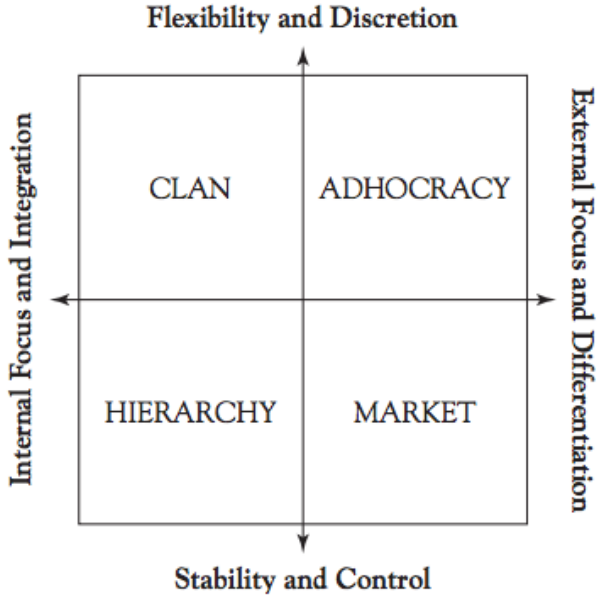


Figure 2. Four different organizational culture types. Reprinted from Cooper and Rohrbaugh (1981)

3.2.1. Adhocracy culture (external focus/flexibility)

The adhocracy culture is the culture type that adapts the most to the turbulent environment (Cameron & Quinn, 2006). Employees that share the adhocracy culture tend to view their external environment as energizing and idea giving, as well as complex and unstable (Boddy et al., 2009). As a result, the work operations tend to be flexible and organic. Employees of adhocracy culture are motivated by variety, stimulation, improvements, visionary leadership and being creative. Managers with this kind of culture value innovation and adaptation as they believe it will benefit the organization (Ruppel & Harrington, 2001). The organizational goals are being receptive to change, acquiring new resources and offering original services and products (Cameron & Quinn, 2006). Furthermore, the flexibility of the culture motivates employees to engage in change, and individual initiatives are highly encouraged (Hooijberg & Petrock, 1993). Adhocracy cultures tend to have decentralized power and non-authority relationships (Cameron & Quinn, 2006). Leadership is often visionary with focus on risk-taking. Adhocracy cultures value information technology that can aid in realizing employees' goals by providing control over the external turbulent environment through inter-organization linking systems (Cooper & Quinn, 1993). Moreover, it can provide the management with an insight of the organization and further improve adaptation and innovation possibilities.

3.2.2. Market culture (external focus/control)

The market culture focuses on the external environment and business transactions with customers, suppliers, regulators, and licensees (Cameron & Quinn, 2006). The common belief is that the customers are critical and value-oriented and the external environment hostile. Market cultured employees find motivation from seeking efficiency, reaching goals (Boddy et al., 2009) and competitive actions (Cameron & Quinn, 2006). They value determined and commanding leadership (Boddy et al., 2009). The external focus of such cultures may aid employees to understand the importance of implementing new technology, but the resistance for lack of control and order may hinder adoption (Ruppel & Harrington, 2001). Market cultures value information technology that enables reduction of uncertainty through sensitivity analysis, forecasting and optimization (Cooper & Quinn, 1993). Moreover, this type of culture often values technical aspects of information technology such as accuracy and quantification rather than understandability, convenience, and personalization.

3.2.3. Hierarchy culture (internal focus/control)

Employees with hierarchy culture do not see the external world as a pressing factor to assess (Boddy et al., 2009). The focus is put on achieving internal control, efficiency, and smooth-running operations. Rules and policies are valued and the work of employees are set out by procedures (Hooijberg & Petrock, 1993). The decision-making processes are highly connected to the hierarchy and authority lines (Cameron & Quinn, 2006). The work is often repetitive, the employees are often suspicious towards change and the leaders focus on technical issues (Boddy et al., 2009). Motivation comes from having a secure, stable internal environment. Hierarchy cultures prefer information technology that can aid management with documentation and measurement (Cooper & Quinn, 1993).

3.2.4. Clan culture (internal focus/flexibility)

The clan culture shares the internal focus of the hierarchy culture (Boddy et al., 2009). However, motivation is found from people's development, commitment, cohesiveness and interpersonal relationships. The managers act as mentors and family figures (Hooijberg & Petrock, 1993). Loyalty and tradition are highly valued. Furthermore, flexibility is highly valued, and managers do not typically seek profit maximization (Cooper & Quinn, 1993). Clear goals and values connect the organization but teamwork and employee involvement are more prominent than hierarchy rules and procedures (Cameron & Quinn, 2006). Furthermore, the customers are often seen as partners. Jones et al. (2005) found in their research that employees with clan culture showed higher levels of readiness for change and thus have a greater chance of reaching change implementation success. Information technology that fits this type of culture enables a higher level of participation and communication between employees (Cameron & Quinn, 2006). The culture thus values information technology such as computer conferencing and group decision support.

3.2.5. Developing a fitting organizational culture

For an organization to be successful it is essential to have a culture that matches the requirements and demands from the company's competitive environment and the long-term goals of the organization (Cameron & Quinn, 2006). Organizations in industries where innovation, entrepreneurship, and flexibility is crucial for success might need a strong adhocracy culture with less emphasis on control and coordination. Research points out that control cultures such as market and hierarchy suit companies with centralized management and a low number of social groups (Kling, 1980). Clan and adhocracy cultures are more suitable for decentralized management and complex organizations. Hall et al. (2001) state that a traditionally closed culture that is common for small medium enterprises is likely to hinder change and that an open, flexible culture that fosters learning culture is essential for change processes and survival. Furthermore, Cameron and Quinn (2006) state that mature organizations often emphasize market and hierarchy culture, and further explain that such organizations require careful management to successfully complete a culture change as it is more difficult to change from market and hierarchy towards a more flexible culture than the opposite way around. Magnusson and Olsson (2012) further note that a flexible culture is crucial when attempting to implement an information system. Boddy et al. (2009) present a case study that showed that the employees of a bank that had two present cultures, adhocracy and hierarchy, reacted differently to the concept of online banking. The adhocracy cultured employees, that were mostly from the business development department, accepted the suggestion of online banking, while the hierarchy employees that were from the IT department and used to efficient, well-developed systems did not. However, Boonstra et al. (2004) explain that employees have higher acceptance of systems that match their culture, independent of the culture's flexibility level. In their research on general practitioners that were undergoing an electronic prescription system implementation, it was found that the market cultured employees accepted the new system whereas the clan cultured employees did not. Some organizations might be most effective when no particular culture is dominant (Cameron & Quinn, 2006). Cameron and Quinn (2006) mentioned the example of Ford Motor Company, which has been leading in design aspects on the market while holding the most efficient manufacturing processes in the industry. At Ford, no particular culture type is dominant.

Cameron and Quinn (2006) discuss the negative aspects of subcultures. An organization with cultural incongruence, i.e. where different cultural types are emphasized in different parts of the company, is less likely to be high-performing and successful than an organization with congruent culture. Congruent cultured companies share the same assumptions, values, and strategies, and are thus less prone to encounter issues and obstacles that can cause less efficiency. Employees at incongruent cultured organizations often experience a sense of hypocrisy following organizational behavior that contradicts their perceived company values. Incongruent culture is often a result of lack of focus, vague culture, or a need for different emphasis in different company departments due to a complex environment.

Another important organizational culture aspect to consider is the discrepancies between the organizations current and preferred culture (Cameron & Quinn, 2006).

Discrepancies can be used as a tool for organizations to evaluate which parts of their current culture to maintain when going through a culture change.

3.3 Change management

The implementation of a new information system highly affects organizational and behavioral aspects of the company (Laudon & Laudon, 2014). Researchers have found that neglecting the organizational change needed is a great cause for failure in information system projects (Boddy et al., 2009; Laudon & Laudon, 2014) and thus emphasizes the need for change management. The field of change management is well researched. When the literature study for change management was performed, the researcher was searching for a well developed, established framework that was easy for the company to comprehend and that could be grounded with information system implementation research. Different change management research was therefore evaluated with regard to the most frequently mentioned critical success factors (CSF) of information system implementation research. After evaluating the most quoted and praised frameworks, it was concluded that Kotter's (1996) eight-step model matched the top CSF and thus would be the most suitable for this thesis. In the next section, the framework and the CSF are presented together.

3.3.2. Kotter's eight-step model & critical success factors of information system implementation

Kotter (1996) formed an eight-step model from his key lessons developed from studies at 100 companies undergoing change. Some critique can be found against the step model (Cameron & Green, 2012) as the change process that Kotter (1996) describes as a linear progression also can be seen as a continuous cycle. Cameron & Green (2012) further believe that Kotter (1996) puts too much weight at the beginning of the process rather than emphasizing the entire cycle as equally challenging.

3.3.2.1. Step 1 - Establish a sense of urgency

Kotter (1996) describes that successful change projects start with a strong communication to the entire organization of why the change is necessary. Declining margin trends, potential revenue drops or other aspects of the competitive market of the organization are used as motivation sources for the employees and managers. The goal is to make the employees understand that the change is inevitable for the company's success and to further build employee involvement and support. If the change process is attached to the entire organization, the CEO and top management are key for succeeding. This step often fails due to a lack of top management understanding of the effort needed to convince employees of the necessity of the change. If it is shown that the top management commitment is weak, cynicism might spread amongst employees and hinder the change effort.

Top management support is noted by several researchers as the most important CSF when implementing a new system (Finney & Corbett, 2007; Somers & Nelson, 2001; Ang et al., 1995; Ginzberg, 1981; Nah et al., 2001). Markus and Benjamin (1997), Nguyen (2009), and Laudon and Laudon (2014) state that top management needs to make change the company's first priority to make the employees perceive it as such.

Leading the change and discussing how the system affects and strengthens the company's competitive situation is moreover noted as crucial (Bingi et al., 1999). Motwani et al. (2002) and Bingi et al. (1999) further discuss strategic planning and foreseeing of problems by the top management as essential. Bingi et al. (1999) further point out that this aspect is important during every step of the project as management intervention can clear up conflicts between departments and across national borders within the company. Furthermore, Boddy et al. (2009) explain that publicly announcing the change as logical and rational reassures employees that share resistance grounded in mismatches between the system and their individual interests. Davenport (1998) also notes top management's important role in reconciling and unifying groups with different interests.

3.3.2.2. Step 2 - Creating a guiding coalition

Kotter's (1996) second step involves creating a project team consisting of the top management and other significant managers within the company. It is essential that subordinate managers are involved as this changes the hierarchy of the project and increases the chances for overall organizational commitment. He explains that change projects that do not perform this step will likely meet hindering opposition at some point in the project. Moreover, he noted that the companies that ignore this step often have a weak record of top hierarchy teamwork and are thus unfamiliar with the benefits of coalitions.

Having a competent project team is emphasized by information system research as a critical CSF (Bingi et al., 1999; Finney & Corbett, 2007; Somers & Nelson, 2001). Somers and Nelson (2001) conclude that a steering committee with representatives of all different departments is necessary for information system projects to succeed. Bingi et al. (1999) describe that the project team should not only have great knowledge of the processes of the company but of the business requirements, as well as have an ability to guide the company through the project. Ngai et al. (2008) similarly cite both technical and business knowledge as important aspects of project team members and further note the necessity of teamwork and enabling of team members to be empowered to make quick decisions.

3.3.2.3. Step 3 - Developing a vision and strategy

The third step is developing a clear vision that the company can follow and be inspired by through the change process (Kotter, 1996). The vision should be created by the guiding coalition and be short enough to easily and effectively be communicated to the employees. Kotter (1996) explains that failing change projects usually either lack a vision entirely or has abundant amounts of plans and programs that are too detailed. The employees are thus left confused or/and unmotivated. The vision should define and explain the direction the company wishes to move to reach success and further include strategies on how to get there.

The necessity of a clear vision is further mentioned in information system research (Finney & Corbett, 2007; Somers & Nelson, 2001; Ang et al., 1995; Nah et al., 2001). Finney and Corbett (2007) and Roberts and Barrar (1992) agree about the need for a clear vision, and further cite that it should be directly linked to the business goals of

the company. Roberts and Barrar (1992) further note that the vision should not be phrased in technical terms. Ang et al. (1995) found clear goals and objectives to be the third most important CSF for information system implementation projects.

3.3.2.4. Step 4 - Communicating the change vision

Kotter's (1996) fourth step is to communicate the vision to the company (Kotter, 1996). He notes three aspects of unsuccessful communication. Not communicating the vision enough, not communicating it clearly enough and top management acting contradictory to the vision. The managers need to act as role models to the coalition and the entire organization affected by the change. The vision needs to be easy to comprehend and communicated through every available communication channel on a regular basis.

Communication is noted as a CSF by several researchers (Somers & Nelson, 2001; Finney & Corbett, 2007; Nguyen, 2009; Motwani et al. 2002; Sarker & Lee, 2003). Somers and Nelson (2001) note that communication should constantly flow not just within the project team but through the entire company. Finney and Corbett (2007) suggest forming a communication plan to guarantee open communication through the company but especially between the IT and business personnel. Nguyen (2009) states that communication is particularly important within small-medium enterprises that lack sufficient IT knowledge to ensure proper technology adoption and implementation success. Bingi et al. (1999) also cite that management should not only fund and allocate resources to the project but take an active leading role in the change process. They explain that the commitment from the top need to be well established, visible and felt by those affected by the change to enable a successful implementation project. Nguyen (2009) further notes that managers should not only claim to support but show their commitment and participate actively in the project.

3.3.2.5. Step 5 - Empowering employees for broad-based action

The fifth step includes enabling employees to be involved in the change project (Kotter, 1996). The employees should feel free to contribute to the project with new ideas and leadership. Kotter (1996) explains that the project success is connected to the number of company employees that are involved in the project. Moreover, it is necessary to actively seek and remove obstacles that hinder the project. Some of the obstacles might be imaginary and constructed out of employees' anxiety for change, in which case it is important to aid employees in realizing so. Other obstacles, such as mismatches with the change project and employees' self-interests, needs to be attended to and managed.

The importance of user involvement is cited widely in information system research (Nah et al., 2001; Holland et al., 1999; Nguyen, 2009; Laudon & Laudon, 2014). Nah et al. (2001) state that users should be able to discuss, participate in, and leave requirements for the project to reach end-user approval. Nguyen (2009) notes user involvement as crucial for implementation success and that involving employees in the project enable the project to be more productive. Laudon and Laudon (2014) explain that user involvement causes employees to have a more positive attitude towards the system as they can contribute with their business requirements and

priorities. Boddy et al. (2009) further explain that user involvement can reassure resistant employees that have power-related concerns about the system altering their position in the company. Furthermore, it is essential that unexpected project issues and conflicts are carefully and continually managed and resolved (Nah et al., 2001; Finney & Corbett, 2007; Roberts & Barrar, 1992).

3.3.2.6. Step 6 - Generating short-term wins

A change project can often take a lot of time and therefore it is important to create short-term goals that employees and managers can reach and be inspired by (Kotter, 1996). Kotter (1996) explains that without this step, there is a risk for motivated employees to join resistant ones out of frustration. Goals should thus be well established and planned for, and success should be recognized and celebrated. Promotions and monetary recognition are encouraged.

The need for short-term wins is further discussed in information system research (Boddy et al., 2009; Nah et al., 2001; Holland et al., 1999; Finney & Corbett, 2007). Boddy et al. (2009) mention how short-term deliverables not only give the employees a sense of achievement but enables top management to visibly see the return on the investment as well as prevent employees and managers from losing motivation. A project that loses credibility is easily associated with negativity and faced with criticism. Holland et al. (1999) agree on the importance of milestones and state that project progress should be communicated to all parts of the company. Nah et al. (2001) claim that the milestones should be rapid, comprehensive and successive and that schedule and budget control should be observed and communicated as well.

3.3.2.7. Step 7 - Consolidating gains and producing more change

Kotter (1996) explains in his seventh step that while short-term wins are important, managers should be careful with announcing full project success too soon. This often causes resistant employees to attempt to stop further attempts of change and thus kills the momentum. Short-term wins should instead be used as encouragement to follow up with even larger change projects to consolidate the improvements and question not before confronted company structures and policies.

Information systems are considered a long-term commitment and should therefore be continually evaluated and developed (Somers & Nelson, 2001). Boddy et al. (2009) explain that successful implementations and continued improved change readiness require a developed learning culture where mistakes are accepted and learned from. A learning culture can be enabled through the use of feedback networks, and continuous reviews. Finney & Corbett (2007), Nah et al. (2001) and Holland et al. (1999) all agree that continued management support, feedback networks, and post-implementation evaluation are important to reach success in information system projects. The feedback process and continued monitoring should be performed through discussions amongst the project team members and user feedback analysis (Holland et al., 1999).

3.3.2.8. Step 8 - Anchoring new approaches in the culture

In the final step, Kotter (1996) cites the importance of anchoring the changes into the corporate culture of the organization. The new behaviors and strategies need to be connected to the shared values in order to not vanish when the change project is finished. Active steps and communication need to be utilized to convince employees, managers and top management that the change has improved the performance of the company and contributed to corporate success. Furthermore, it is necessary to ensure that successors of management positions are aware of the change and understand the benefits from it.

Managing cultural change is widely cited as an important CSF for implementation projects (Finney & Corbett, 2007; Roberts & Barrar, 1992; Nguyen, 2009). Nguyen (2009) notes that implementing new technology affects the corporate culture of the company and vice versa. Organizational and geographical cultured differences, as well as culture that is not change receptive, is considered as problematic when trying to implement a new system (Finney & Corbett, 2007). Roberts and Barrar (1992) state the need for the information system project strategies and aims to be connected to and incorporated with the company values and culture.

4. Empirical Data

Chapter four presents the empirical findings from the case study at the SSC to provide a broader understanding of the company's current situation and issues. The data has been collected via interviews with employees and managers and through observations. Specific opinions and external references are presented with oral references. The chapter starts with a more in-depth presentation of the tanker industry and customer requirements to increase the comprehension of the SSC's business strategy, values, and culture. Thereafter, the implementation process is described more thoroughly. Organizational aspects of the different parts of the company are presented to aid the evaluation of the presence of subcultures. Moreover, the empirical data from the organizational culture assessment instrument is presented. Lastly, the chapter focuses on the presence of different national cultures within the company.

4.1 The Tanker Industry

The SSC is a Swedish shipping company that transports oil and specific petroleum products in Europe and Asia with a fleet containing twenty tankers. The company's main operations are run from the office in Sweden. The top management is situated here as well as the four different departments - accounting, crewing, technical maintenance and purchasing, and HSQE (Health Safety Quality Environment). The top management consists of the CEO and the fleet manager who has overall responsibility for all organizational operations. The crew onboard the vessels are responsible for taking the shipments from one port to the other, cargo operations, daily maintenance and sometimes placing purchasing orders. Almost all the different departments at the office have contact with the vessels on a daily basis. The crewing department coordinates the ever-changing schedules for the relief of crew, and each vessel has designated people in both the HSQE and the technical departments that they can contact 24/7 for aid with issues regarding health safety and environment or maintenance and purchasing. These employees are called designated persons ashore (DPA) and technical superintendents (technical department). All of the office managers have previously worked as high rated crew members before working at the office. The crewing and HSQE managers have previously worked as captains, and the technical superintendents have worked as chief engineers.

The market for tanker shipping has been challenging for the last couple of years. This due to a decline in demand and overcapacity of vessels on the market from an increase in new tanker orders (World maritime news, 2018), as illustrated in Figure 3. The market struggle first emerged in 2008 as a result of the crash in the financial market and is predicted to continue for several years to come. The production of new tankers has decreased since the recession. However, the vessel utilization rates will not stabilize until the demand increases and the overcapacity of vessels decreases due to demolition of obsolete vessels (Bimco, 2017).

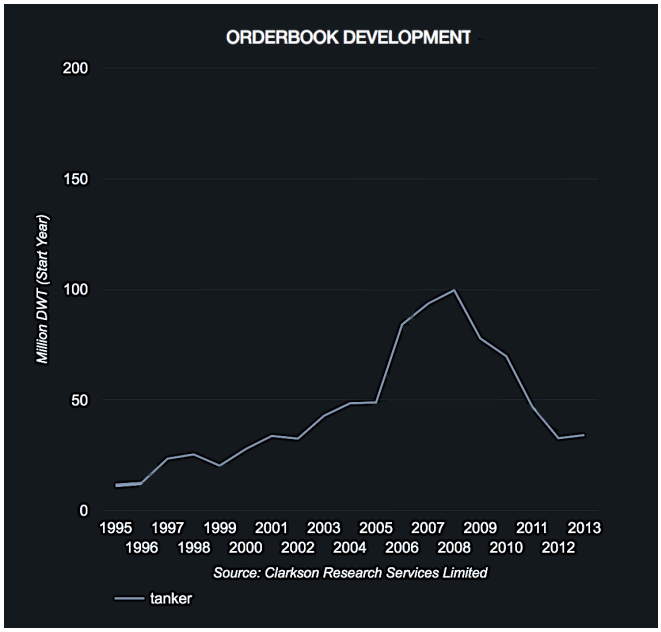


Figure 3. The fluctuation in ordered tanker vessels per year. Clarksons. Retrieved March, 21, 2018, from https://www.clarksons.com/services/broking/market-analysts/.

4.2 Customer Requirements

The SSC currently transports for a few large and about 20 less reoccurring oil companies through time charter, contract, and spot agreements. The time charter agreements are signed on several years basis with the large customer organizations where the customer organization plan and organize the different deliveries. The contract and spot agreements are much shorter and signed with a large variety of customers. Time charter agreements are seen as the most coveted by the market and the competition for such agreements are thus extremely high. The oil companies that run the time charter agreements have through the association The Oil Companies International Marine Forum (OCIMF) over the years increased their requirements for the vessels assigned to the agreements. The requirements have led to an evolution of the shipping industry and the vessels when it comes to health, safety, and environmental aspects.

One of the requirements is expressed through the Tanker Management Self Assessment (TMSA) program that aids organizations to improve their safety management systems through key performance indicators (KPI's) and best practice guidance. The TMSA contains twelve elements with four levels of compliance within each element that stretches from basic to excellent. Evaluations of the compliance levels are done by the oil companies through reoccurring management reviews at the office, and spot-checks onboard the vessels. Organizations are expected to reach level two with aim and preparations for reaching level three and four. The twelve elements that focus on safety, environment, quality, management, personnel, and improvement are presented in Table 3.

Table 3. The twelve elements of the TMSA program. (Fleet Manager, 2018-02-12)

Element 1	Management, leadership and accountability
Element 2	Recruitment and management of shore-based personnel
Element 3	Recruitment and management of vessel personnel
Element 4	Reliability and maintenance standards
Element 5	Navigation Safety
Element 6	Cargo, ballast and mooring operations
Element 7	Management of change
Element 8	Incident investigations and analysis
Element 9	Safety management
Element 10	Environmental Management
Element 11	Emergency preparedness and contingency planning
Element 12	Measurement, analysis and improvement

The SSC has built their company values from the demands of the customers and thus brands themselves as a quality-focused, cost-effective, safe and environmentally friendly company. The fleet manager notes that the growing requirements from the oil companies are good for the company as the SSC's company values give them a head start compared to their competitors when it comes to reaching the requirements (Fleet manager, 2018-01-24). He further mentions the importance of employee and crew competency and described that the crew is regularly informed of the new requirements and the significance of the company values to ensure the company's current and future success. The higher ranked crew members meet up with the company managers once a year for communication workshops where the company values and customer requirements are discussed with the aim to develop strategies and procedures for reaching these requirements and matching the work environment with the company values. The strategies and procedures that have been developed from the customers' requirements are then communicated via the higher ranked crew members to the rest of the vessel crew.

4.3 The Implementation Process

The SSC had vaguely discussed the need for implementing a new system for a couple of years before the decision was made. Several of the previous systems were outdated, complicated and time-consuming. The top management started the process by inviting several different suppliers of information systems to present their solutions to the company. These meetings were highly focused on finding the technical solution that would best suit the company's requirements. The participants were representatives of the supplier company, the top management of the SSC and the technical

superintendent that was named project manager for the implementation process. Almost an entire year was put on the supplier decision until the company acquired a new vessel that needed the new system implemented right away. The decision was finally made, and a few final meetings with the selected supplier were held that once again included the top management and the project manager. The meetings focused on how the system should be altered to technically match the processes of the company. The project manager was assigned to schedule a project plan where the system would be implemented on one vessel at the time over a period of one year.

As the implementation date for a certain vessel was approaching, emails were sent out, and phone calls were performed to inform the crew members of the planned change and why it was occurring. The system was introduced to the office employees at a workshop where a representative from the supplier company explained the technicalities of the system and showed how to operate it. The workshop was filled with negative attitudes from participants who showed disinterest in learning the system. Some participants even left the workshop before it was finished. A similar workshop was scheduled at the newly acquired vessel that would be the first one to start using the system. However, it was discovered that the crew had already started using the new system without issues and the workshop was thus seen as unnecessary. The project manager had his daily work tasks to perform aside from the project and placed much time on adapting and preparing the system to match the company's technical requirements. The fleet manager admits that the floor has not been particularly open for discussion of the project for other employees or managers. (Fleet manager, 2018-02-12)

4.4 Organizational Aspects

The following section explains where the different departments of the organization place their main focus. This was investigated as a part of the evaluation of sub-groups and organizational culture.

4.4.1. The top management - Innovation and improvement is the key to the future

Since the start of the company, the managers have been taking radical, innovative steps from time to time to enforce their competition on the market. These steps have involved developing new ways to increase the safety and decrease the environmental impact of the vessels. The top management explains that they have these actions to thank for their success.

> *"We always try to stay ahead of the Oil Companies regulations, so that our company and our vessels can be ready for the new regulations even before they are initiated." Fleet manager (translated from Swedish, 2018-01-24)*

The managers also try to foster an innovative and creative environment for their employees by acknowledging and handing out awards to employees who come up with new ways to make their company better. He notes that it is important for the top management to try to know every employee in person and that they try to visit the

vessels as often as possible to be able to gain overall organizational commitment. Sustaining the creative environment has become harder over the years. The fleet manager notes age and long-term employment at the same position as a causing factor and explains that several of the company's managers are becoming increasingly more comfortable and thus avoids changes that seem to disrupt their workflow (2018-02-12). Further, he emphasizes the increased restrictions in the business as an even more important cause for the decreased innovation rate in the company.

> *"The regulations make us better as an organization, but of course it limits how we can perform our work and develop our company. Both managers and employees think more and more inside the box instead of taking own initiatives and developing new ideas and ways to do things." Fleet manager (translated from Swedish, 2018-02-12)*

4.4.2. The technical department - The importance of smooth-running operations

The technical department's primary focus is keeping the vessels and shipping processes running at all times. Their daily work schedule contains planning and performing purchases, planning maintenance, making sure that the work onboard the vessels follow the set up procedures, and that all the vessels have the certificates they need to keep operating. The certificates are updated by classification associations that inspect the vessels once a year. Furthermore, the superintendents visit and inspect the vessels themselves at frequent intervals to prevent situations that hinder the vessels operations. However, their daily work is impeded now and then by incidents onboard that requires immediate action. The vessels on time charter contracts go "off-hire" when incidents or technical issues causes cargo delays and is thus not paid for the lost time.

> *"Time really is money in this industry." Superintendent B (translated from Swedish, 2018-02-12)*

A technical superintendent explains such a scenario where the digital tools for measuring the level of cargo in the tanks suddenly stopped working as the vessel was loading cargo (Superintendent A, 2018-03-20). The cargo loading was stopped and the technical superintendent had to immediately find an electrician in the area that could repair the measuring tool. If the issue was not corrected quickly, the vessel would need to leave the dock for other vessels waiting in line to load cargo, and lay anchor outside the port until the vessel was ready to operate and the other vessels had finished loading. The primary responsibility for the technical superintendents is to prevent these situations from occurring, where the main action is to ensure that the vessels have the right amount of critical spare parts onboard and that the scheduled maintenance is never overdue. The fleet manager explains that the new information system will aid the superintendents with notices that alert the crew when it is time for different maintenance jobs and the superintendents when the jobs are not completed (Fleet manager, 2018-03-21). Furthermore, the updating of the spare parts digital inventory will be simplified, and the superintendents will be alerted when parts with

long delivery time need to be ordered. The technical department acknowledges few benefits from the new system.

4.4.3. The HSQE Department - Keeping the vessels safe and the customers happy

The main ambition for the HSQE department is reaching the demands of the customers. The department manager explains that they always strive for reaching the next level of the TMSA program.

> *"The customers set our goals, and it is our job to make sure that the company reaches them." HSQE manager (translated from Swedish, 2018-03-20)*

Their daily work contains preparing the crew for vetting, i.e. evaluations made by the classification associations that targets health, safety, quality and environmental aspects. If the vessel receives any remarks from the vetting, they plan and perform work to correct these. They furthermore ensure that the vessels and crew reach the requirements of the transport agency and that all safety equipment is functioning and up to date. The department also handles reports of near-miss incidents onboard and develop procedures for ensuring that such incidents are not repeated. Moreover, they send frequent reports of the TMSA KPI levels, that was described in *4.2 Customer Requirements,* to the customers. The new information system will simplify the measurement of the KPI's by gathering the companies total information flow in one system and further make it easier to present these KPI's to the customers (Fleet manager, 2018-03-21). The system also strengthens the crew and vessels safety by making it easier for crew members to report near-miss accidents and incidents and enabling an immediate channel for communicating these reports to the other vessels. Furthermore, the HSQE department has several complex ways of performing specific work tasks that make it difficult for someone from outside the department to perform them. The new system will simplify these steps and make it easier for a substitute to jump in when necessary. These benefits are not acknowledged by the HSQE department.

4.4.4. The Crewing Department - The human factor makes the difference

Developing and encouraging the employees is the key focus for the crewing department. The crewing manager states that having skilled crew members is the most important aspect of an efficient and safe vessel (2018-02-12). He further explains the focus shift that has occurred for what is considered a skilled crew, from crew members trained in traditional seamanship, to having a crew that is knowledgeable of the new safety procedures, regulations, and digital work processes. The department thus ensures that each crew member has the education level and certificates required to reach the highest level of the TMSA program. Furthermore, they work with the crew to improve communication and collaboration both onboard, and between the vessel and the shore-based employees. Other work tasks include coordinating crew relieve schedules and traveling, employment of new crew members and ensuring that crew members' medical certificates are up to date. The new information system

improves the communication channels between the vessels and further enables the crew members to view other vessels' results and accomplishments, which the top management hopes will encourage improvement (Fleet manager, 2018-03-21). The crewing department thinks positively of the benefits from the new system.

4.4.5. Accounting - The importance of cost control

Paying wages, registering invoices, filing taxes, balancing the books and administration are the main work tasks at the accounting department. The day to day work is efficient but often repetitive. Since the recession in 2008 more time has been placed on controlling and lowering company costs where possible but otherwise, little change has occurred since the company started in the way the department performs their work. The new system will simplify the department's procedures for creating documents on the financial statistics, and automate several of the department's work processes, and the top management hopes this will allow more time for negotiating supplier contracts and improving the budgeting and cost control (Fleet manager, 2018-03-21). The accounting department does not see any clear benefits from the new system.

4.4.5. The Vessel Crew - Reaching efficiency and goals through flexibility

Work onboard the vessels is targeted on streamlining the shipping operations through strong collaboration, communication and striving for constant improvement.
A captain discusses the need for flexibility to keep control onboard the vessel:

> *"The most important thing is control. We need to know that every piece of the vessel works, at all times. Checkups and maintenance is a huge part of our job. But in order to have control, we need to be flexible. The next harbor can change at any moment, we have to be prepared for bad weather, for change of crew, new regulations. Change is a part of life here onboard." Captain A (translated from Swedish, 2018-04-04)*

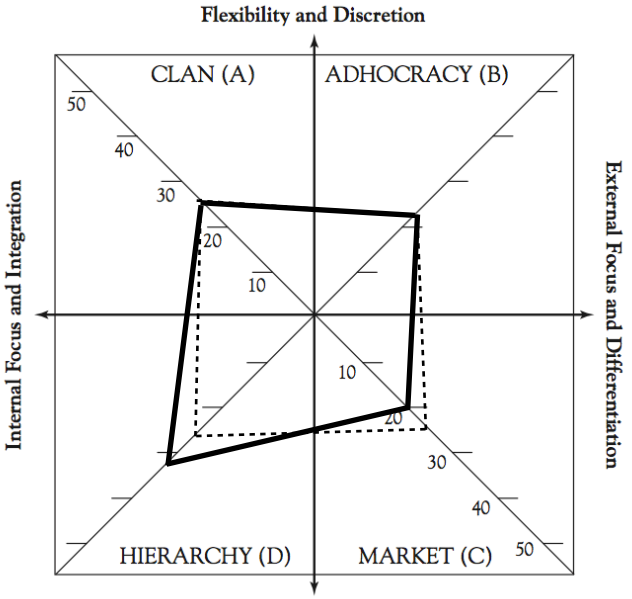
Other crew members further explain their appreciation of the top management's initiatives for reaching continuous improvement in the work environment onboard. One aspect that is mentioned is the recognition that was presented to crew members that innovated new, better ways to perform the work processes. The implementation of the new system will enable easier communication with shore-based employees as well as other vessels, simplify the digitalized processes for maintenance work, purchasing activities and near-miss incidents reporting. The crew members are well informed of the benefits of the new system and are looking forward to the improvements.

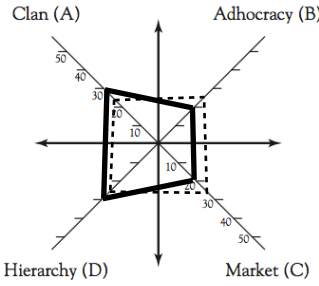
4.4.6. Results from Organizational Culture Assessment Instrument

As described in section *2.3.3. The Organizational Culture Assessment Instrument*, the employees, managers and crew members were asked to evaluate their organization based on the organizational culture assessment instrument presented by Cameron and

Quinn (2006). The results have been plotted in diagrams obtained from Cameron and Quinn (2006) and are presented in the following pages. The perceived current culture is plotted with a full line and the preferred culture is plotted with a dotted line.

Top Management





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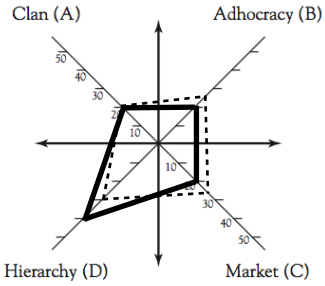
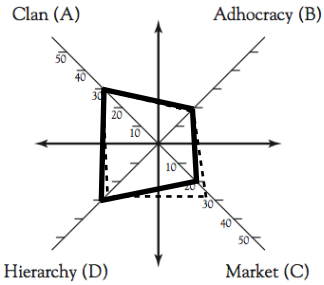
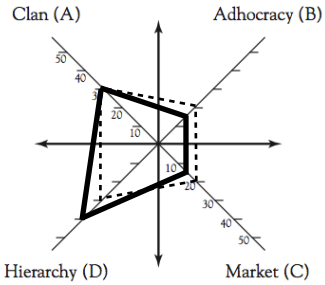


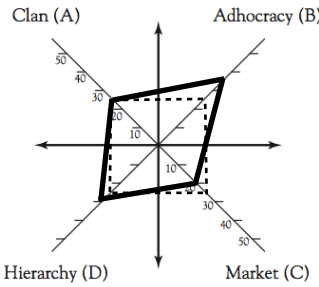
2 Organizational Leader



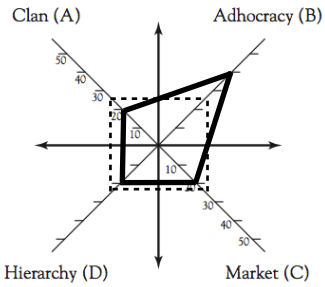
3 Management of Employees



4 Organizational Glue

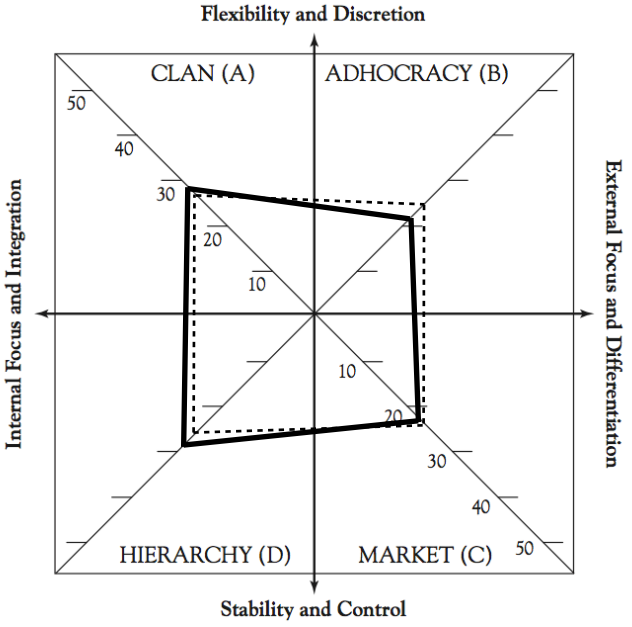


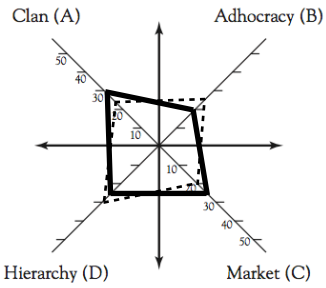
5 Strategic Emphasis



6 Criteria of Success

Crew Members





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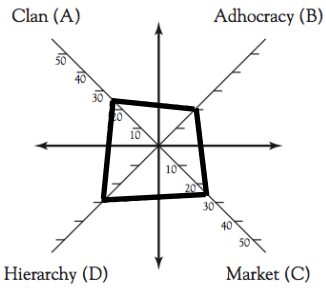
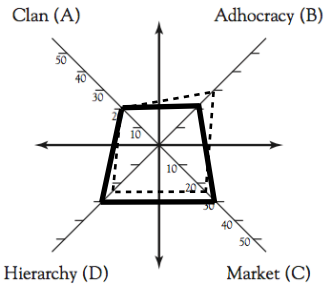
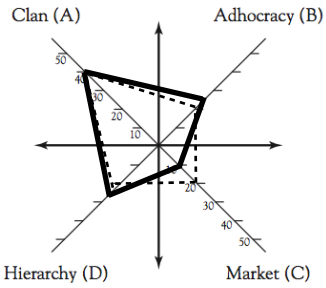


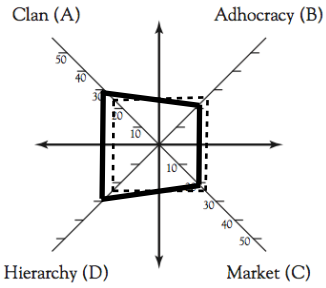
2 Organizational Leader



3 Management of Employees



4 Organizational Glue



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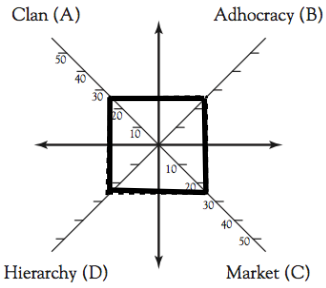
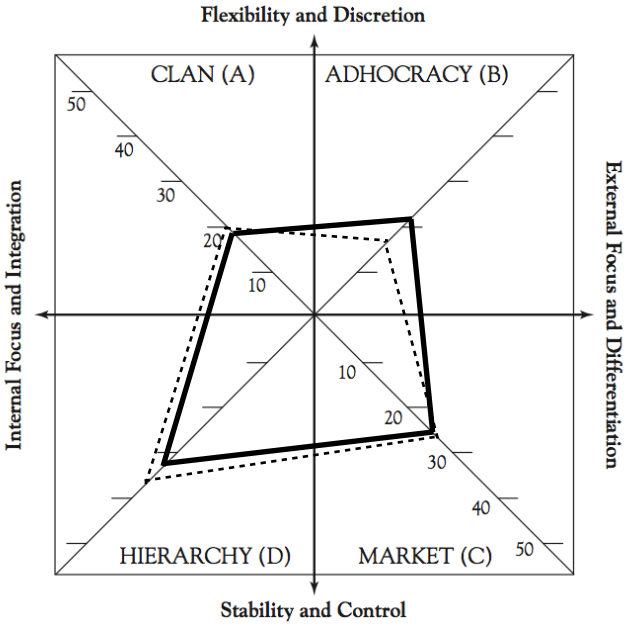
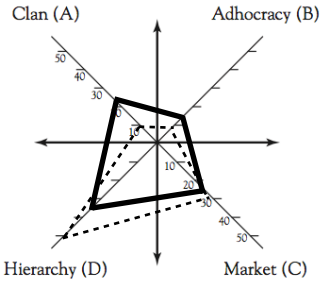


6 Criteria of Success

Accounting Department





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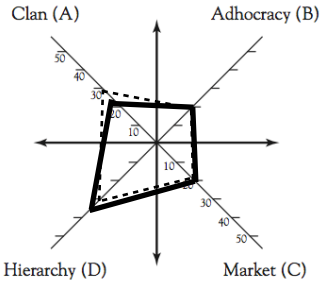
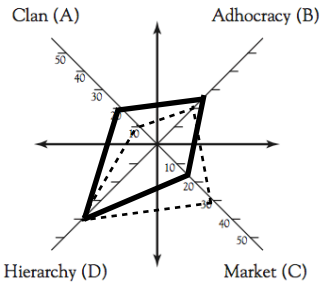
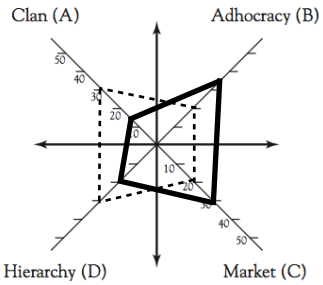


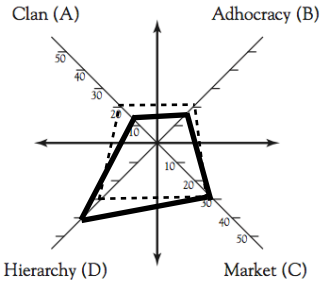
2 Organizational Leader



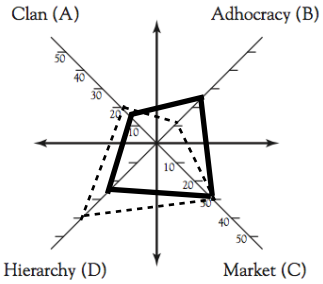
3 Management of Employees



4 Organizational Glue

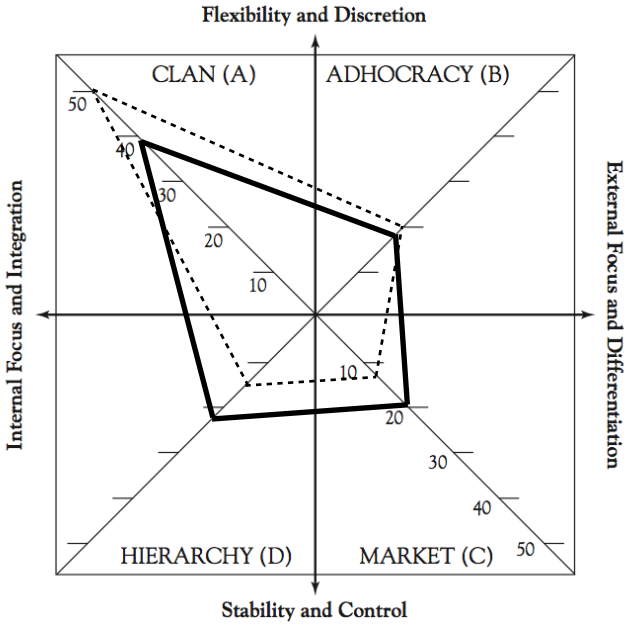


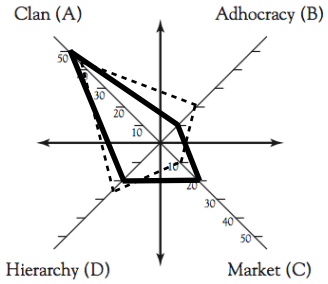
5 Strategic Emphasis



6 Criteria of Success

Crewing Department





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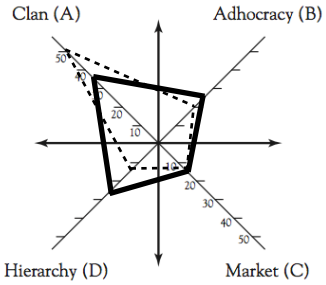
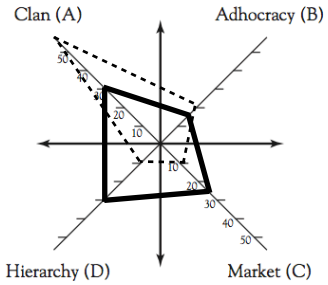
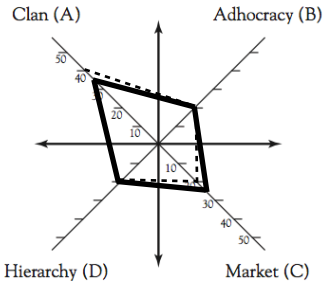


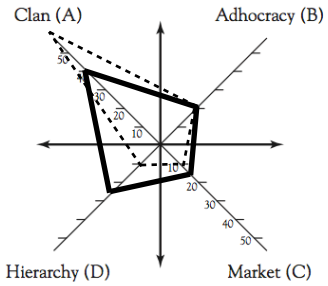
2 Organizational Leader



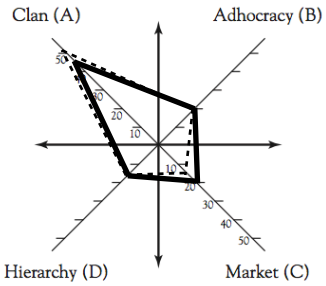
3 Management of Employees



4 Organizational Glue

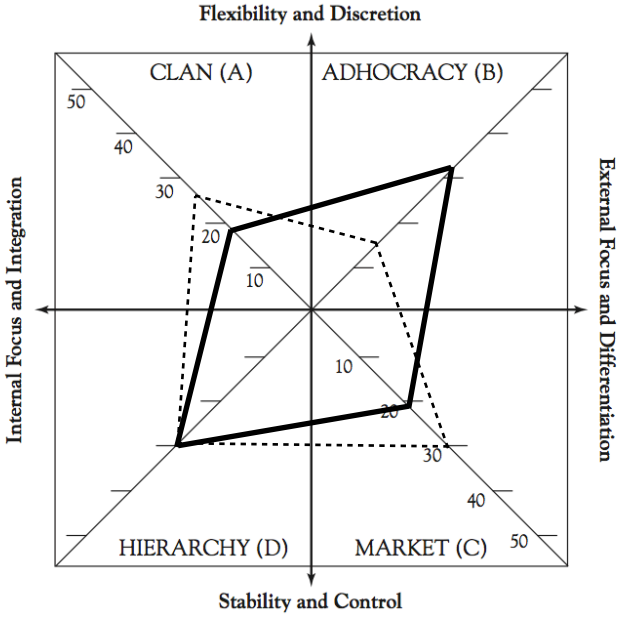


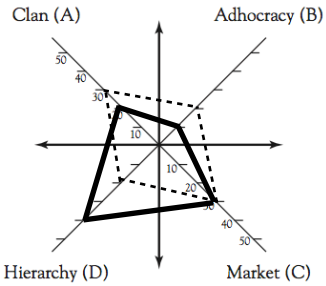
5 Strategic Emphasis



6 Criteria of Success

HSQE Department





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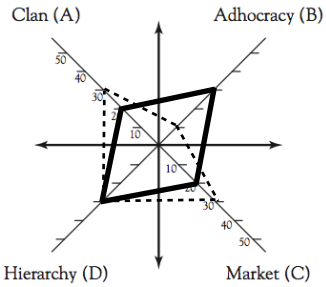
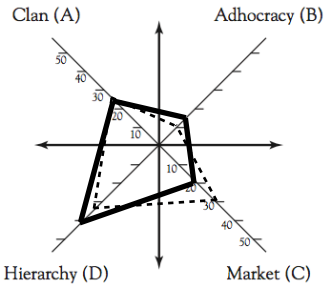
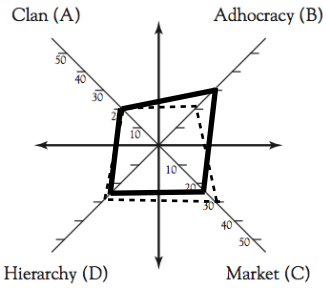


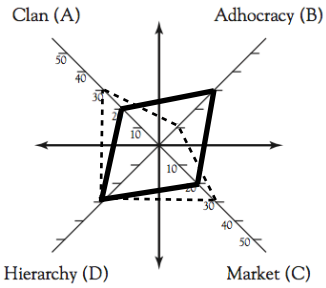
2 Organizational Leader



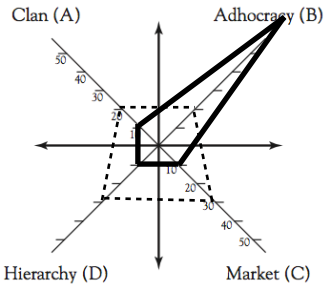
3 Management of Employees



4 Organizational Glue

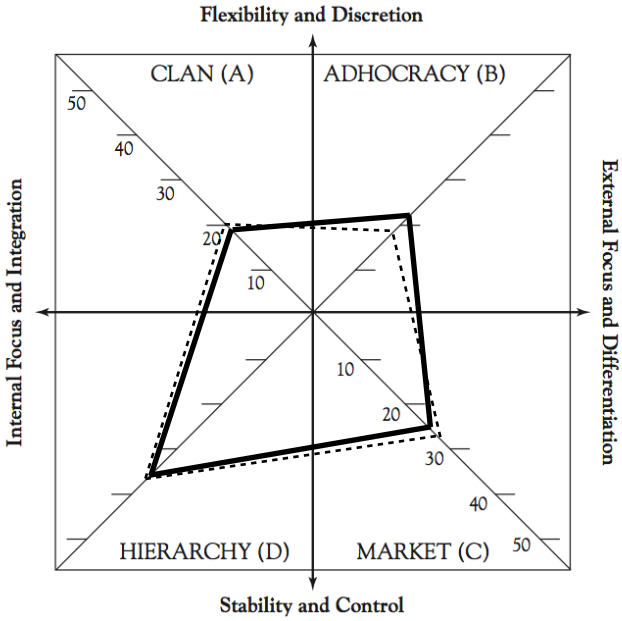


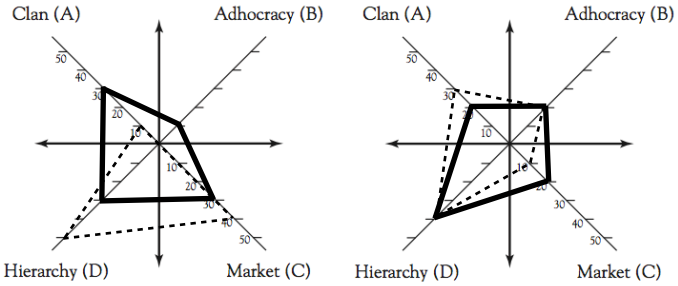
5 Strategic Emphasis



6 Criteria of Success

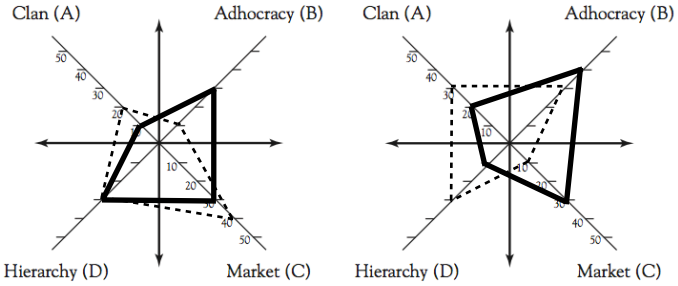
Technical Department





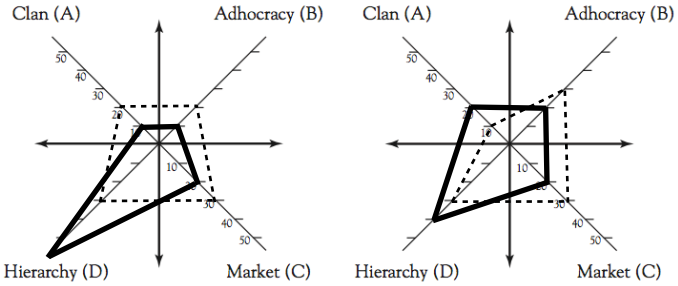
1 Organizational Characteristics

2 Organizational Leader



3 Management of Employees

4 Organizational Glue



5 Strategic Emphasis

6 Criteria of Success

4.6 National Cultures

While the employees at the company's office are solely of Swedish descent, the crew onboard the vessels come from a number of different countries. Swedes, Filipinos, and Dutch are the main nationalities, but some crew is of Estonian, Latvian and Lithuanian descent. All nationalities are represented in the higher ranks of the crew hierarchy. There are about 40 Filipino crew members employed as captains, chief engineers, and officers, second engineers and officers, about 35 of both Swedish and Dutch crew members and 10 of the Baltic ones.

National cultured differences such as traditions, religion, language and food preferences are not seen as an issue by the crew members or the employees at the office. Several crew members explain that the crew has worked together for an extended period of time and that the differences have thus resolved. Leadership skills of, and good cooperation between, the captain and chief engineer, as well as mutual trust in relationships are instead mentioned as essential factors for a good working environment.

4.6.1. The hierarchy levels of the organization

The crew onboard the vessels operate through a hierarchical order. There are two central departments — officers and engineers. The officers run the deck, and the engineers are responsible for the engine room. The overall responsibility for both departments is appointed to the captain. The chief officer that is next in rank on the deck side is responsible for cargo operations, maintenance of the deck and thus the three able seamen and the deck cadet, as well as the cook. The two second officers are responsible for navigational and safety equipment and the manoeuvring of the ship in open sea. On the engine side, the chief engineer is highest in rank. Next, there is a second engineer, two greasers and sometimes an engine cadet. Some of the crew work daytime and some take turns in four hours shifts every twelve hours.

The presence of respect for authoritarian values is most visible for the Filipino crew. Managers and employees alike noted the lack of initiative-taking from the crew with Filipino nationality. The fleet manager explains the situation by acknowledging the Filipino crew's anxiety of making mistakes and mentioned that though the Filipinos have a high work ethic, they often need strong leadership and clear directions to perform well.

> *"They believe that if they just do things according to the instructions they've been given, they will stay clear of mistakes and blame. There's this — no-one can blame me if I do exactly what the note tells me to do - kind of mentality." Fleet manager (translated from Swedish, 2018-03-22)*

The authoritarian values also show in the way the employees communicate. The fleet manager explains that the Swedes and Dutch are not afraid to speak up if they feel that something is not working for them, while there is sometimes a need to ask the Filipino the same question a few times to receive an accurate response (Fleet

manager, 2018-03-22). One of the technical superintendents mentions a similar situation:

> *"The Filipino crew are often afraid to tell us when there's a problem. I think they are afraid that they might lose their job, even though they've been with the company for twenty plus years. They often just say yes, yes sir to avoid getting more questions. But they never get upset if you push them to tell the truth. They know we trust them. It just might take a little time to get there." Superintendent A (translated from Swedish, 2018-01-24)*

For the Filipino crew, communication follows the clear line of hierarchy onboard. One technical superintendent explains:

> *"The chief engineer and the captain often share the most communication with the land organization. Although, the Swedish, Dutch and Baltic crew does not hesitate to call us, independent of their ratings onboard. But if a Filipino greaser wants to speak to us or the captain about something, he will talk to the 2nd engineer who talks to the chief engineer, who brings the issue forward to the captain. They respect the hierarchy very much". Superintendent B (translated from Swedish, 2018-02-12)*

Despite the previously mentioned aspects, the strict adherence to authoritarian values of the Filipino crew seems to have declined over the years. Most of the crew strive to reach higher ranks and develop their working conditions. The fleet manager explains that the higher education the Filipino crew members receive, the more they tend to speak up and solve situations they are not comfortable with, which further improves the overall communication onboard (Fleet manager, 2018-03-22).

The organization at the office is flatter than onboard the vessels. There are little authoritarian values shown in and between the different departments. The departments consist of a small number of employees that work as teammates rather than managers and subordinates. The CEO mentions the Swedish employees' higher tendency for taking own initiatives and notes that they more often try to figure out new ways to things (CEO, 2018-03-20). The top management value this aspect as it matches their own endeavor to see more innovative motivation from their employees. On the other hand, the CEO also notes that this often negatively influence the decisions for change coming from the top management, and explains that they do not accept top management decisions as quickly as the Filipino crew members.

4.6.2. Loyalty and commitment of the crew members

Most of the crew members have worked for the company for over twenty years. The management notes the importance of their high retention rate which they claim is not typical for all shipping companies. The Filipino crew members are employed by large staffing agencies in the Philippines and typically move frequently between different vessels and companies. The SSC focuses greatly on educating their crew members to lower risks of human factor accidents, thus emphasizing loyalty and long-term employment within the company. The pay-back for the loyalty focus is apparent with

the Filipino crew members, who speak warmly of the company and sees the managers as family members. Two of the Filipino crew members even named their children after the company's vessels. One Filipino engineer explains his loyalty to the company:

> *"I am very grateful for getting the chance to work for this company. I have been here for 15 years now, and we are all a big family here. The managers are always visiting when they have a chance, or we speak on the phone." Chief engineer A (2018-04-04)*

Another Filipino crew member similarly describes the bond with the organization:

> *"When my niece had to go to the hospital, they sent my family money in advance to pay for the hospital bills. They do everything they can for me, and I do everything I can for them." Second officer A (2018-04-10)*

The loyalty of the crew members influences the Swedish and Dutch and Baltic employees as well that feel that there is a mutual trust between the crew members and the managers and that they are an important part of the company and its success. One Baltic second engineer describes how the fleet manager flew out on a weekend to the vessel to help with a technical issue onboard when no technical superintendent was able to attend, a situation that would be unthinkable when working for other companies (Second Engineer A, 2018-04-10). Furthermore, one Swedish chief officer describes the crew's contribution to the challenging market competition and stated:

> *"We always have to do everything we can to keep the customers happy and the machinery going. As soon as we can leave dock, we do. Every minute we stand still we lose money." Chief officer A*
> *"And who are "we" in this situation?" Interviewer*
> *"The company!" Chief officer A (translated from Swedish, 2018-04-04)*

The crew further shows strong, efficient collaboration skills onboard the vessel. Docking and loading cargo are some of the processes that incorporate almost the entire crew and requires excellent communication flow between the officers on the control bridge and the engine and deck crew. The Filipino crew tends to work together even on tasks where it is not required.

> *"One swede might run the sewage water by him/herself, while four Filipinos might watch a fifth one do the same task." Chief officer A (translated from Swedish, 2018-04-04)*

4.6.3. Conflicting interests at the office

The level of collaboration is lower among the shore-based employees where the departments tend to keep to themselves without much collaboration. The CEO notes that a common theme for the managers and employees at the office is their disinterest in sharing information and knowledge (2018-03-20). One new employee has noticed

this issue and mentions several instances where the workflow of the different departments can be made more efficient through the knowledge of the other departments. One example is the HSQE department's method for communicating new safety regulations. New work processes and checkups that needs to be performed by the crew on a recurring basis are communicated through thorough documentation, but there does not exist an efficient way to remind the crew when the checkups need to be performed. The maintenance module that the technical superintendents share with the crew will be made available to the HSQE crew by the new system. The module has the ability to schedule tasks that emerge as a notice on the crews' system when it is time to perform them, a function that can solve the HSQE departments' issue.

> *"I guess it would mean extra work for the technical department to teach the function to the HSQE department, and I don't think the HSQE department has put enough effort into the new system to even register this feature. But if the HSQE crew and the technical superintendents would just talk to each other, so many problems could be solved." Employee A (translated from Swedish, 2018-03-20)*

Another example of conflicting interest conflicts comes from the accounting department that shows concern for one specific new feature of the new system that involves their department as well as the technical department. The feature changes the process of approving supply invoices. With the old system, the process included the accounting department in the last step where they had to accept the technical superintendents' approval. The new system automates this step as the invoices are automatically accepted if they match the delivery note. The financial manager explains that he is not sure that the new feature is appropriate and wonders if the time saved by the automation is worth having the accounting department losing control over the process (Financial manager, 2018-03-22).

4.6.4. Attitudes towards technology change

Several managers from different departments at the office shows concern for whether the crew onboard the vessels will be able to learn to operate the new system. Age is frequently mentioned as an important factor for why the implementation will be too difficult for certain crew members. Onboard the vessels however, the attitude is different. One captain that is approaching retirement years feels underestimated and states that the shipping environment has been ever changing since he first started working in the business.

> *"When I started, we had almost no digital tools whatsoever. We even used real navigational charts instead of the digital ones we have now. We are used to change and learning new things. One new system will not be a problem for us." Captain A (translated from Swedish, 2018-04-04)*

Another factor that is indicated by the shore-based employees to affect the implementation of new technology is the Dutch, Filipino, and Baltic crew members' attitude towards new technology. The crew members thinks differently about this factor as well and note that the company had changed other parts of the technology

onboard and that they rarely make the wrong decisions. One Dutch chief officer recalls a situation where the systems for handling digital charts onboard was changed four times over a period of two years, and states that there were no issues then and that she does not believe that there will be any now either (Chief officer B, 2018-04-10). She explains that while some crew members thought the previous solution might have been better, they are sure that the company had some reason for preferring the new solution.

Some crew members have however noticed that the Dutch and Baltic crew does not always use the information systems onboard. One example is explained by a second officer who mentions that the Latvian second engineer always double-checks the storage for spare parts instead of trusting the inventory information system when ordering parts (Second officer A, 2018-04-10). The Latvian second engineer explains this situation by expressing that he does not always trust the system and that the risk of not having the correct amount of spare parts is just too high (Second engineer A, 2018-04-10). One Swedish chief officer states that the Dutch crew members have a hard time explaining why they perform some steps in the information systems and that they continually do what they were once taught without realizing the purpose behind the steps (Chief officer A, 2018-04-04).

The Filipino crew members show great acceptance towards the new system although some thinks that certain functions seems unnecessary. The reason for this belief is twofold. One Filipino expresses that the system is too complex and thus wishes for fewer functions (Chief engineer A, 2018-04-04). Two other Filipinos discusse if some functions that allowed for the office to keep track on the work procedures onboard are necessary, meaning that the crew has the work procedures under control and that there are no reason for the office to further keep track of them (Second officer A, 2018-04-10; Able seaman B, 2018-04-10). Despite the mentioned aspects, the Filipino crew has an overall good impression of the system and mention that the company has made right decisions in the past and that they therefore have belief and trust for the new change as well.

The top management that initiated the project showed support for the implementation in the beginning. The project manager explains that the support had sustained from parts of the top management (Project manager, 2018-02-12). However, other parts of the management withdrew their support when conflicts and resistance grew from shore-based employees and managers. The CEO has been involved in the development process but has yet to start working in the new system. The project manager explains that the lack of interest from the CEO has spread to department managers at the office (Project manager, 2018-02-12). He notes a lack of interest in learning the system from the different departments at the office. He further explains that everyone seems to agree that they cannot keep working with the old systems, but that the support faded as soon as the plan for the change was presented. He further indicates that he believes that the issue is that the employees do not want to learn new things. Several employees have a different take on the issue and state that the benefits they get from learning the new system are not worth the time they need to take from their daily work. The project manager further mentions that the department managers

does not listen to him as much as is necessary and that they request the system developer to explain the system instead of the project manager (2018-02-12).

5. Analysis of Current Situation

The analysis chapter presents the results of the thesis to try to answer the research questions presented in section 1.3 Problem Analysis. It starts with an analysis of the national culture aspects. Following that is the found connection of national culture-related issues matched with change management solutions. The chapter ends with an analysis of organizational culture aspects and found solutions for issues related to those aspects.

5.1 National Culture Aspects

The thesis shows that some national culture aspects do not impact the work environment at the SSC. Language barriers, different religions or traditions are not considered an issue by employees nor managers. Several crew members onboard the vessels report an appreciation of the multi-nationality of their crew members. However, the three national culture dimensions stated by Hofstede and Hofstede (2005;2004) was found to have a possible impact on the work environment as well as the information system implementation. These dimensions will be analyzed in the following section.

5.1.1. Individualistic/collectivistic dimension

According to Hofstede and Hofstede (2005;2004), Swedish employees share individualistic values. This applies to the shore-based employees at the SSC that are all of Swedish descent and show evident individualistic behavior. Information and knowledge sharing as well as collaboration are sparse, conflicting interest conflicts are common, and individual interests are protected. Chow et al. (2000), Boddy et al. (2009), Laudon and Laudon (2014) and Bull (2003) all mention the connection for individualistic cultures between individual interests and the willingness to share information and knowledge. It is also found that some resistance can be connected to job security as noted by Bull (2003) as a result of the automation and simplifying of work tasks enabled by the new information system. Lee et al.'s (2013) statement about individualistic cultures evaluating technology with the aid of information from trusted sources applies to some of the shore-based employees as they do not appreciate the project managers attempts of teaching them the new system but instead wish for a more thorough introduction of the system from the system supplier. They furthermore liberally discuss the issues of the IT project per Tan et al.'s (2003) research. The top management is of Swedish descent as well and shows individualistic values. They treat their employees as individuals instead of groups, with focus on each individual and with different ways to manage different employees. Hofstede and Hofstede (2005;2004) describe this as typical for individualistic cultures. Macrí et al. (2001) describe how managers might not support systems out of concern for losing power. The management shows concern for losing the trust of their shore-based employees due to the employees' resistance towards the system. Feeling the need to protect individual interests can hinder the system implementation, and the individualistic culture dimension can therefore affect the implementation negatively.

Employees from the Netherlands, the Philippines, and Baltic countries share collectivistic values (Hofstede & Hofstede, 2005;2004). Håvold (2007) states that crew members with initial individualistic values tend to become more collectivistic and vice versa. The majority of the crew onboard the vessels, even those of Swedish descent, show collectivistic values with teamwork amongst crew members, good communication, mutual trust and loyalty to, and appreciation of, the company. The crew trusts the company when it comes to choosing a suitable system in accordance with Lee et al.'s (2013) statement about collectivistic cultures looking to their peers when evaluating technology. Tan et al. (2003) note that collectivistic cultures show less tendency to disclose problems with IT projects. They explain that such behavior occurs when employees associate themselves with their department or group instead of the company and thus protect their group by not fully communicating issues to the top management. Making the employees associate themselves with the entire organization is therefore noted as necessary. Most crew members show great connection and commitment to the company rather than just their crew members. However, the crew has close to no problematic issues connected to the new system to discuss. The negative impact on IT projects from the collectivistic culture dimension mentioned by Tan et al.'s (2003) research will be discussed further in section *6.2 Result discussion*. Furthermore, Calhoun et al. (2002) state that collectivistic cultures might find information systems to cause information overload. Tan et al. (2002) explain further that it is therefore of importance to only include necessary functions in the system. This aspect is present with some Filipino crew members that believe the new system seems too complicated. The collectivistic values can influence the implementation both positively and negatively.

5.1.2. Power distance dimension

Hofstede and Hofstede (2005;2004) claim that employees from Sweden, the Netherlands, and Baltic countries share small power distance values and thus value interdependency between managers and subordinates and minimized hierarchy. The shore-based employees and the top management work in non-hierarchy manners and sub-ordinates communicate liberally with managers. The crew from the mentioned countries respect the hierarchy onboard the vessels but communicate freely despite hierarchy like the shore-based employees. Hasan and Ditsa (1999) note that small power distance cultures are more likely to adopt technology on the grounds that employees feel free to advise managers on IT projects. Kirkman and Shapiro (2001) claim that small power distance countries are less prone to technology adoption as a result of lesser pressure to conform. All Dutch, Baltic and Swedish crew members express their approval of the new system to the SSC. The shore-based employees freely communicate their concerns and issues with the project, and the small power distance can thus affect the implementation negatively in line with Kirkman and Shapiro's (2001) remarks.

Employees from the Philippines share large power distance values according to Hofstede and Hofstede (2005;2004). They further note that employees from large power distance countries show authoritarian values independent of their level of education, while higher-educated small power distance cultured employees show less

authoritarian values than non-educated ones. Håvold (2007) concludes that vessel crew members' power distance values are lower than stated for their countries. The higher ranked Filipino crew members at the SSC show less authoritarian values than the lower ranked ones, and the managers at the SSC explain that the authoritarian behavior has decreased for the Filipino crew over the years. However, the majority of Filipino crew members still show high authoritarian behavior, with respect and desire for rules and clear directions. Shanks et al. (2000) discuss that large power distance cultures need less persuasion for accepting change and this factor might, therefore, affect information system implementation positively. The Filipino crew members communicate that they trust the company's decision for change due to the successful changes in the past. However, Hofstede and Hofstede (2005;2004) state that large power distance cultures sometimes feel concern towards disagreeing with managers and thus follow commands without questions. This behavior is described by the managers that explain the hardships of receiving accurate feedback from the Filipino crew and their high concerns for making mistakes. Leidner and Kayworth (2006) explain that employees from large power distance cultures expect a trusting relationship with their managers and do not appreciate being checked upon. This aspect is visible with the Filipino crew members that question the functions that enable the managers to track the work procedures onboard. The last two mentioned aspects can impact the implementation negatively.

5.1.3. Uncertainty avoidance dimension

According to Hofstede and Hofstede (2005;2004), Swedish employees share low uncertainty avoidance values. Per Hofstede and Hofstede's research, the top management of the SSC shows low uncertainty avoidance behavior as predicted by focusing on strategy instead of daily operations and a belief that the rules and requirements of the industry sometimes hinder their work processes. Keil et al. 's (2000) statement about low uncertainty avoidance cultures being more prone to continue with failing IT projects is confirmed by the top management that shows low values and an ambition to finish the project despite the emerged issues. The shore-based employees show some aspects of high values with several counts of long-term employment, and a time is money attitude per Hofstede and Hofstede's (2005;2004) research. However, their need for rules and formalization is connected to the work onboard the vessels, and the presence of rules and formalization at the office are low. Therefore, the shore-based employees and managers mostly emphasize low uncertainty avoidance values. Galliers et al. (1998) found that low values might hinder implementation as employees do not value accurate information and thus does not see the need for an information system. Several employees at the office question the need for a new system and mention that they do not have time for learning a new system. Low uncertainty avoidance can thus impact the implementation negatively.

Likewise to Swedish employees, Filipino employees share low uncertainty avoidance while the Netherlands and Baltic countries share high values according to Hofstede and Hofstede (2005;2004). Håvold (2007) states that uncertainty avoidance values have risen amongst vessel crew members. High values are presented via rules, formalization, long-term employment and an impression that time is highly connected

to money (Hofstede & Hofstede, 2005;2004). These aspects are highly present with all crew members. Srite and Karahanna (2006) state, like Lee et al.'s (2013) research on the collectivistic dimension, that high uncertainty avoidance cultures evaluate technology through impressions from their peers. This behavior is visible for the entire crew onboard the vessels independent of descent as they all trust the system chosen by the top management. Research found that high values lead to slower rates of adoption as a result of a belief that IT is risky (Png et al., 2001; Thatcher et al., 2003; Leidner et al., 1999). However, the rates of adoption at the SSC are higher with the crew members than the shore-based employees. This aspect will be further discussed in section *6.2 Result discussion*. Leidner et al.'s (1999) research on countries with high levels having difficulties with trusting information from information systems is however expressed by Baltic crew members' habit of double checking the system. This analysis shows that high uncertainty values might have an impact on the system implementation.

5.1.4. Concluding analysis of national culture aspects

A summary of the national culture analysis is presented in Table 4. The aspects that are analyzed to have a possible impact on the implementation process are marked in grey.

Table 4. Concluding analysis of national culture aspects.

	Top management	**Shore-based employees**	**Swedish crew members**	**Filipino crew members**	**Dutch crew members**	**Baltic crew members**
Individualistic/ collectivistic	Ind.	Ind.	Coll.	Coll.	Coll.	Coll.
Power distance	Low	Low	Low	High	Low	Low
Uncertainty Avoidance	Low	Low	High	High	High	High

5.2 Solving Resistance With Change Management

The low uncertainty avoidance of the shore-based employees can have a negative impact on the implementation as they might not value accurate information enough to appreciate the functions of the information system (Galliers et al., 1998). The employees do not see enough benefits from the system to take time off their other work tasks to learn the system. It is noted that these issues can be resolved by making the change project the highest priority of the company and through top management support in accordance to Kotter's (1996) first step of his change model - establish a sense of urgency. These aspects are further mentioned in information system research

(Finney & Corbett, 2007; Somers & Nelson, 2001; Ang et al., 1995; Ginzberg, 1981; Nah et al., 2001). The top management at the SSC played a technical part at the beginning of the project where they evaluated different suppliers for choosing a new system, but since their support has declined immensely. Some of the shore-based employees mention a vague understanding of why the old systems should be replaced, but an understanding of the urgency for the change is not detected with anyone at the office except for the project manager. The initiation of the project was spread through the office in a slow manner, and the system was only presented through a technical workshop where the technical features were discussed but not the actual need for the system. The crew members that have accepted the decision to replace the information systems received e-mails and phone calls about the change in a collected manner. Their sense of urgency is thus higher which can be a reason for their higher rate of adoption. Establishing a sense of urgency by having top management communicate why the change needs to occur can motivate the shore-based employees and managers. The first step of Kotter's eight-step model should therefore be applied by the SSC.

The collectivistic culture dimension of the crew members can help implementation if the crew members consider the whole company's interests when evaluating the system. However, if they see the crew's interests as more important, they might not be communicating system issues properly to protect other crew members. By moving the focus from the crew as a team towards a connection with the company, this issue can be resolved (Tan et al., 2003). A possible solution is found in Kotter's second step - form a powerful guiding coalition, where he explains the importance of involving sub-ordinates to change the project hierarchy and improve chances for overall organization commitment. Having a well-chosen project team is cited by researchers as an important step towards implementation success (Bingi et al., 1999; Finney & Corbett, 2007, Somers & Nelson, 2001). The project team at the SSC consisted of the top management and the project manager. Creating a guiding coalition consisting of the top management, the project manager, shore-based managers and collectivistic representatives from the vessels might enable a stronger overall organization commitment. Kotter's second step is thus essential for implementation success.

The individualistic culture found with the Swedish top management and the shore-based employees can hinder the implementation. Some managers and employees do not believe that their individual interests match the features and consequences of the new system, leading to resistance and conflicts. Kotter's third and fourth step involves creating and communicating a vision for the change project. These steps are essential to convince the employees of why the change is important (Finney & Corbett, 2007; Somers & Nelson, 2001; Ang et al., 1995; Nah et al., 2001). The project initiation at the office did not include explanations on the necessity or benefits of the new system. By establishing and communicating a clear vision that is connected to the business goals and values of the company, as suggested by Roberts and Barrar (1992), and Finney and Corbett (2007), the motivation of the shore-based employees can be increased. Step three and four of Kotter's eight-step model is thus important for a successful implementation.

The small power distance of the shore-based employees can impact the implementation positively due to the employees' free way of communicating issues to their managers. However, it can also cause negative impact due to the lesser pressure of conforming to orders from the management. The use of user development is cited as a CSF for implementations (Nah et al., 2001; Holland et al., 1999; Nguyen, 2009; Laudon & Laudon, 2014) and connects to Kotter's fifth step — empowering others to act on the vision. In the fifth step, he describes the importance of allowing the employees to participate in and bring ideas to the project to heighten employee motivation. Boddy et al. (2009) explain user involvement as a solution to power-related conflicts due to possible alterations of company positions caused by information systems. Several shore-based employees show concerns for automation of processes and a simplifying of utilization of substitutes that can be power-related. The CEO of the SSC admits that the floor has not been open for discussion for further employees than the project manager. By utilizing the shore-based employees' free communication through user development, the lack of pressure to conform and power-related concerns might be solved through true employee motivation for the project. The SSC should therefore consider applying Kotter's fifth step.

Research notes high uncertainty avoidance as a cause for slow technology adoption (Png et al., 2001; Thatcher et al., 2003; Leidner et al., 1999). Some Baltic crew members do not seem to trust information technology, an issue that needs attending. Kotter's fifth step is suitable for this aspect as well as it involves removing obstacles that hinder implementation. The SSC has previously only focused on solving technical issues. Kotter explains that some issues that employees experience might be imaginary and fear-related and that there therefore is a need for management to attend to these issues and put effort into convincing the employee that the perceived issue will not be a problem. Furthermore, Srite and Karahanna (2006) note that employees with high uncertainty avoidance evaluate new technology through their peers' opinions. Therefore, the importance of Kotter's fourth step is elevated as he discussed the necessity of top management visibly showing acceptance and commitment to the change process. The aspect of top management commitment is further emphasized by Bingi et al. (1999), and Nguyen (2009). Keil et al. (2000) explain that high uncertainty avoidance might lead to lower tendencies of wanting to continue with a failing project. Therefore, Kotter's sixth step - plan for and create short-term wins, is important to prevent failing motivation further along in the project. By communicating reached milestones to the entire company, motivation for continued work on the project can be sustained (Kotter, 1996; Boddy et al., 2009; Nah et al., 2001; Holland et al., 1999; Finney & Corbett, 2007). Kotter's fifth and sixth step should therefore be applied by the SSC.

The large power distance of the Filipino crew members can be positive for the implementation in the way that they tend to follow orders from top management unquestionably per Hofstede and Hofstede's (2005;2004) research. It can however hinder the implementation for two reasons. The trust-related concerns that some Filipinos show towards being checked upon by top management through the system

needs to be attended to. Boddy et al. (2009) note that a public announcement in a logical, rational manner of why change is needed might reassure resistant employees. This is also explained by Kotter's first step that was previously mentioned. The importance of step one is thus elevated. The other issue connected to large power distance is the habit of not disclosing issues due to fear of disagreeing with managers and fear of wrongdoing mentioned by Hofstede and Hofstede. Kotter's seventh step is to consolidate the improvements from the change project. By achieving a learning culture that accepts and learns from project mistakes them as mentioned by Boddy et al. (2009), the company can become more prepared for the next change project. Introducing employee feedback networks and discussions that focus on learning might convince the Filipino crew members that mistakes are accepted, and that feedback is welcomed. Kotter's first and seventh step is thus important for the SSC.

Kotter's eighth and final step - anchoring the new approaches in the organizational culture is noted as a CSF in information system implementation research (Finney & Corbett, 2007; Roberts & Barrar, 1992, Nguyen, 2009). Kotter and Roberts and Barrar (1992) state that the new behaviors and strategies must be connected to the company culture and values to be maintained when the project is finished. The organizational culture of the SSC's organizational culture will be analyzed in section *5.3 Organizational aspects*.

The analysis of the connection between national cultured related issues and Kotter's (1996) change management steps are presented in Table 5.

Table 5. National culture and change management analysis.

Solution step	Description	Issue	Target
Step 1	Establish a sense of urgency	Low uncertainty avoidance/Large power distance	Swedish shore-based employees/ Filipino crew members
Step 2	Form a powerful guiding coalition	Collectivistic culture	Crew members
Step 3	Create a vision	Individualistic culture	Shore-based employees
Step 4	Communicate the vision	Individualistic culture/High uncertainty avoidance	Shore-based employees/Baltic crew members
Step 5	Empower others to act on the vision	Small power distance/ High uncertainty avoidance	Shore-based employees/Baltic crew members
Step 6	Plan for and create short-term wins	High uncertainty avoidance	Crew members
Step 7	Consolidate improvements and create still more change	Large power distance	Filipino crew members

5.3 Organizational Culture Aspects

It is stated in cultural research that national culture might not be sufficient to accurately describe the environment of an organization (Martinsons & Ma, 2009; Peppas, 2001; Martin, 1992; Myers & Tan, 2002). From the concluding analysis of the national culture and especially the individualistic aspect of the shore-based personnel and their conflicting interests, it is important to analyze the organizational culture of the different departments further. To be able to evaluate and analyze the resistance from different departments at the SSC office further, the organizational culture is investigated.

The organizational culture assessment instrument (OCAI) that was performed to map the organizational culture within the SSC shows that several different subcultures exist within the company. The subcultures clearly show the high level of individualistic culture of the shore-based employees that was analyzed in section *5.1.1. Individualistic/collectivistic values*. The subcultures were divided into top management, the crew members and the HSQE (health, safety, quality, environment), accounting, crewing and technical departments.

The results show that the department that emphasizes the clan culture the most is the crewing department. This culture values people development, interpersonal relationships, and commitment (Boddy et al., 2009). The result matches the empirical data gathered from the interviews, where the department explains their perceived connection between the success of the company and their focus on encouragement and development of employees, and good communication and collaboration between employees. Clan cultured employees value flexibility (Cooper & Quinn, 1993) and are often more ready for change (Jones et al., 2005). The crewing department has taken on the new system implementation with enthusiasm and commitment. Clan cultures value open systems that enable group decision support and higher levels of communication between employees (Cameron & Quinn, 2006). The new system enables better communication and transparency throughout the company and thus matches the crewing department's interests. These benefits are further acknowledged by the crewing department.

While the other subcultures in the organization believe that the clan focus is more or less at a reasonable level, the HSQE department expresses a desire for higher clan culture emphasis in the company. This matches the data from the interviews that shows their emphasis on having skilled crew members as a part of increasing the safety onboard. The result of the clan culture scores is presented in Figure 4.

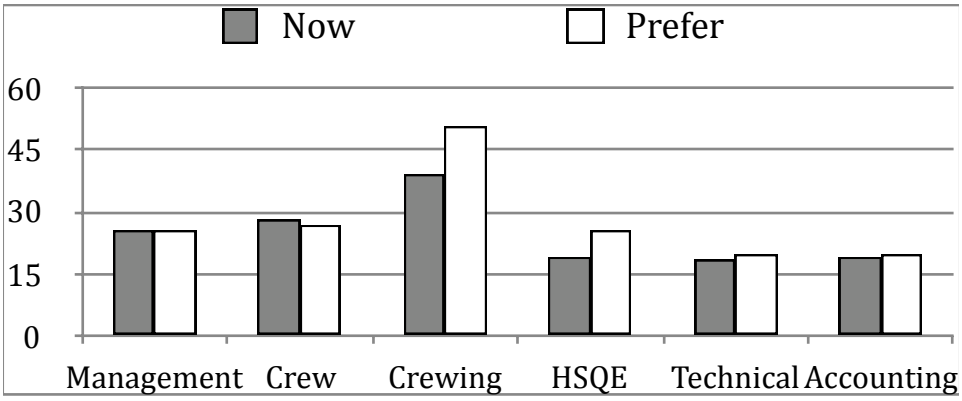


Figure 4. The OCAI scores for the clan culture.

Adhocracy culture has an external focus and is flexible (Cooper & Quinn, 1993). Managers with this culture valued innovation and adaptation (Ruppel & Harrington, 2001) and further focus on achieving readiness for change and offering of original products and services. These aspects are visible for the top management at the SSC that mentions their continued improvement, adaptability, and new ways of performing their business as their key to success. They further emphasize non-authority relationships in accordance with Cameron and Quinn's (2006) research. Furthermore, the top management scored high on the preferred level of adhocracy culture on the OCAI. They further value individual initiatives as noted by Hooijberg and Petrock (1993). The vessel crew also scored high on the preferred adhocracy culture on the OCAI. Employees of adhocracy culture value variety, improvements, and visionary leadership (Hofstede & Hofstede, 2005;2004). These aspects are visible with the crew

that mentions their appreciation of the top management initiatives towards improving the vessels and the presenting of awards to employees that took innovative steps to improve the work environment. The crew further discuss the external environments' complexity and unstableness and the need for flexibility per Boddy et al.'s (2009) research. The adhocracy culture enables a readiness for change that further improves the success rate for technology implementation (Hooijberg & Petrock, 1993). The top management and crew members show high acceptance towards the new system. The three departments that show the highest level of resistance toward the change, the HSQE, technical and accounting departments, all present a desire to lower the level of adhocracy culture in the company when answering the OCAI. The result of the adhocracy culture scores is presented in Figure 5.

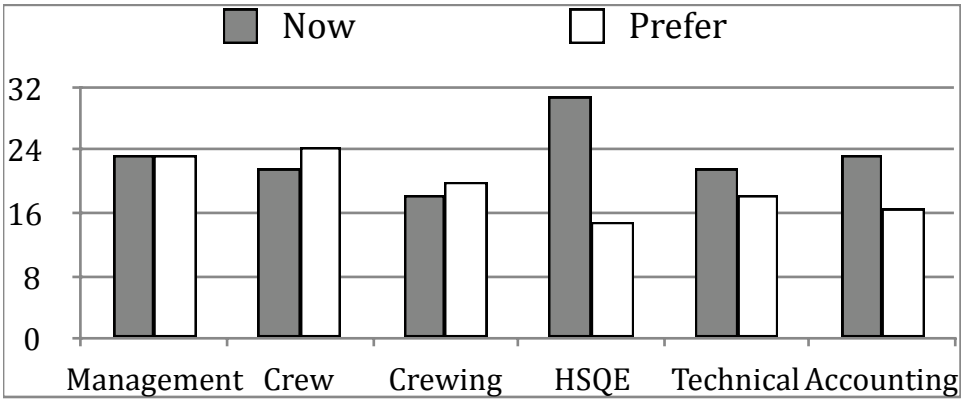


Figure 5. The OCAI scores for the adhocracy culture.

Each department except for the crewing department shows a desire to reach a higher level of market culture. The market culture values external control, customer focus, (Cameron & Quinn, 2006) and reaching goals (Boddy et al., 2009). The HSQE's preferred market value stands out as particularly high, which is also presented by the interview data where they express their primary ambition to aid the company in reaching the customer requirements. Ruppel and Harrington (2001) note that the concern for lack of control might hinder implementation for market cultures. It is further described by research that companies that emphasize a flexible culture are more open to change than less flexible ones (Hall et al., 2001; Magnusson and Olsson, 2012). The HSQE department shows high levels of resistance towards the new system. Cooper and Quinn (1993) note that market cultured employees value systems that reduce uncertainty and improved forecasting, optimization and accuracy. The new system at the SSC will simplify the creation and improve the accuracy of the key performance reports that the customers regularly request which matches the customer-focused interests of the HSQE department. It further optimizes the procedure for near miss accidents that was of priority for the department. However, these benefits are not acknowledged by the department. The results of the market culture scores from the OCAI is presented in Figure 6.

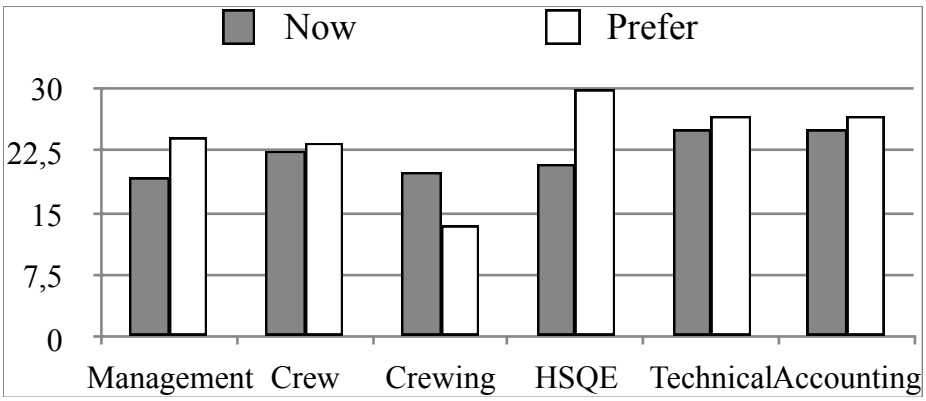


Figure 6. The OCAI scores for the market culture.

The technical and the accounting departments scored the highest for preferred level of hierarchy culture. The HSQE department believes that the emphasis on hierarchy culture should continue on the level it is currently, while the top management and crew desire a somewhat lower level of hierarchy culture. The hierarchy culture values internal control, smooth-running operations, efficiency (Boddy et al., 2009), rules and policies (Hooijberg & Petrock, 1993) Furthermore leaders of this culture emphasize technical issues (Boddy et al., 2009). These aspects are all presented by both the technical and the accounting department that explains that time is money and that control is vital for success. The primary focus of the technical department is placed on inspections and prevention of technical issues that could hinder the daily operations. Furthermore, they continually develop the work procedures for the crew members as suggested by Hooijberg and Petrock's (1993) research. The accounting department focuses on controlling the company costs and administration. The daily work is repetitive as noted by Boddy et al. (2009). Employees and managers that share high levels of hierarchy culture are often suspicious towards change (Boddy et al., 2009). Both the accounting and the technical department show strong resistance towards the new system implementation. Cooper and Quinn (1993) note that hierarchy cultured employees value information systems that enable documentation and measurement. The new system will aid the departments with these aspects by improving spare parts inventory, task completion documentation, and simplify the creation of financial statistics documents. The departments do not acknowledge these benefits. The result of the hierarchy culture scores is presented in Figure 7.

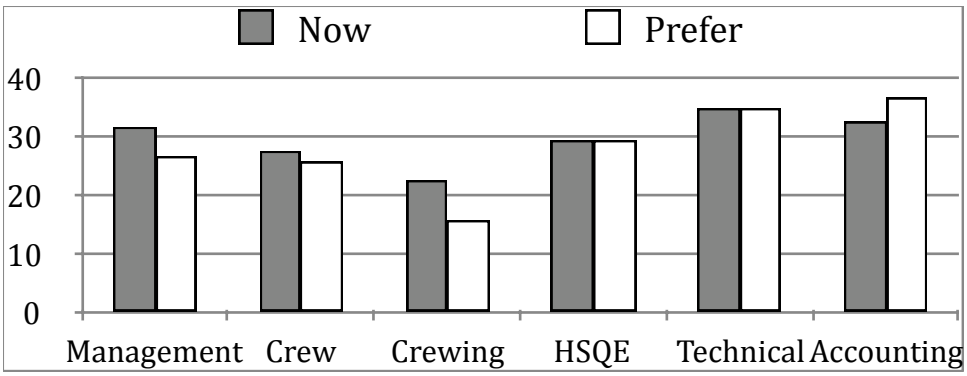


Figure 7. The OCAI scores for the hierarchy culture.

5.3.1. Developing a fitting culture

Research states that cultural incongruence within a company, i.e. a presence of subcultures, has a negative effect on the efficiency and success of the company (Cameron & Quinn, 2006). Different reasons for incongruent cultures are described by research, an aspect that will be discussed in section *6.2 Result discussion.* Moreover, Cameron and Quinn (2006) describe that a successful organization has a culture that fits the external environment. The SSC's competitive environment is driven by the demands and requirements of the customers, i.e. the oil companies. The SSC needs to adapt to the high customer demands to be successful on the market, and therefore the organizational culture needs to emphasize the market culture. Moreover, the requirements of the oil companies emphasize safety, environment, quality, efficiency, smooth operations, skilled crew members, innovation and continuous improvement. These requirements can be connected to a need for hierarchy, clan and adhocracy culture. Cameron and Quinn further describe that organizations that operate in an environment that has requirements for both innovation and efficiency are more successful with a culture that emphasizes the four culture types equally. According to this statement, the culture profile that best fits the SSC's external environment is a culture profile that emphasizes all culture types equally. Both the top management and the crew members preferred this type of culture profile when answering the OCAI, as presented in Figure 8:

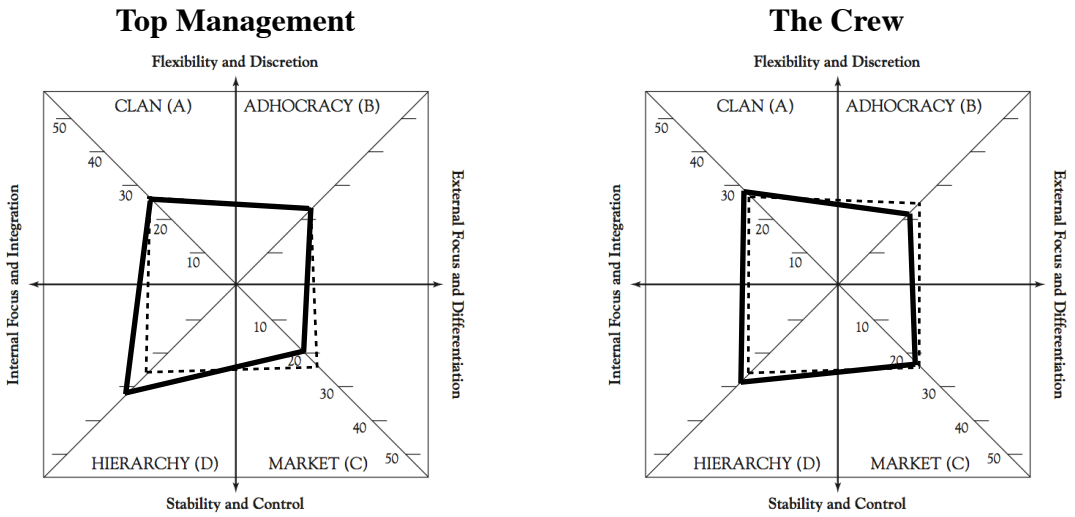


Figure 8. The OCAI scores of the top management and the vessel crew. Adapted from Cameron and Quinn (2006).

Cameron and Quinn (2006) further state that the organizational culture should match the long-term goals and strategies of the organization. The SSC's communicated strategy and branding are being a safe and environmentally friendly, cost-effective and quality-focused company. This strategy does not include innovation and entrepreneurship and thus does not, in accordance with Cameron and Quinn (2006) require an adhocracy culture. A lower preferred level of adhocracy culture is displayed in the results from the OCAI from the accounting, HSQE, and technical departments, as shown in Figure 9:

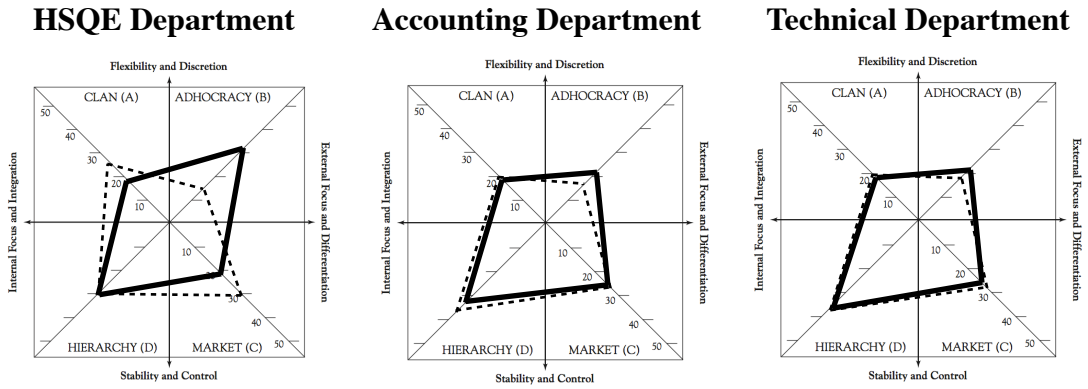


Figure 9. The OCAI scores of the HSQE, accounting, and technical departments. Adapted from Cameron and Quinn (2006).

Kling (1980) explains that organizations with centralized management should have market and hierarchy cultures while decentralized managed, complex organizations requires adhocracy and clan culture. The SSC is a rather complex organization which key operations are constantly shifting geographically. While the top management and department managers are centralized, the managers of the work operations, i.e. the captains and chief engineers, are decentralized. According to Kling (1980), the

adhocracy and clan culture is thus more suitable for the company. The organizational culture of the SSC will be further discussed in section *6.2 Result discussion.*

5.4 Summary of Analysis

The analysis of the different national cultures of the SSC found several aspects that can affect the implementation process negatively. Kotter's (1996) eight change management steps combined with the critical success factors of information system implementation is presented as suggestive tools to target the national culture-related issues.

Regarding the organizational culture aspects, several subcultures were found within the company. Moreover, a clear pattern was found with the departments that showed less support for the system. The accounting and technical department, as well as the HSQE department, all show a desire for the organizational culture to emphasize stability and control rather than flexibility. These types of culture are noted by research as being less receptive to change (Ruppel & Harrington, 2001; Boddy et al., 2009).

Furthermore, researchers state that employees of cultures that matched the new system implementation are more acceptable towards implementation than the ones that experience a mismatch between their culture and the new system (Boddy et al., 2009; Boonstra et al., 2004). The new system creates opportunities and benefits that match the values of all four different cultures. However, this aspect is not agreed with and understood by all employees and managers.

The external environment of the company suggests a cultural profile that emphasizes all four culture types. The SSC's current organizational strategy and values suggest a cultural profile that emphasizes market, hierarchy and clan culture. Kling's (1980) research suggest that the SSC's culture should emphasize clan and adhocracy culture. The findings of the analysis will be further investigated in section 6.2 Result discussion.

6. Discussion

The discussion chapter presents both a methodology discussion and a result discussion. The methodology discussion brings up aspects related to the chosen methodology for this thesis. The literature review, the interview sampling and the trustworthiness and generalizability of the thesis are discussed. The result discussion further develops the result of the thesis to bring the results closer to a conclusion.

6.1 Methodology Discussion

This section will discuss the choice of methodology, and its impact on the thesis trustworthiness. The areas that will be discussed are the literature review, interview sampling and the trustworthiness and generalizability of the thesis.

The researcher did not find much trustworthy literature on the implications of national culture, organizational culture or technology implementation in the shipping industry. The literature review was thus based on research on these areas performed in other industries. Due to this aspect, the researcher evaluated the company on the accuracy of Hofstede and Hofstede's (2005;2004) national culture dimensions and Håvold's (2007) research to assure that the cited values of the different nationalities matched those within the company. This evaluation was performed before acknowledging the issues connected to each value to ensure that the result would be correct and of value to the company. To ensure that the suggestion of changing the organizational culture would be suitable to this industry, the researcher looked in to research from similar industries and evaluated the demands of the shipping market and the SSC's customers requirements. Benchmark evaluation of other successful companies in the business could have been performed to ensure that the suggestion was suitable for the SSC. However, the industry is very competitive, and the researcher did not found any companies that were willing to discuss their organizational culture. This issue further hindered benchmark evaluation for successful technology implementations in the industry. To ensure that the research chosen for this topic would match the SSC's implementation process, the literature was to the greatest possible extent limited to research on technology adoption in the form of information systems similar to the SSC's.

Kotter's (1996) change model has received criticism towards treating the change process as a linear progression and putting too much emphasis on the beginning of the model (Cameron & Green, 2012). The researcher has taken this into consideration and thus will include the criticism when developing the recommendations for the company in section *7.2 Recommendations.*

The interview sampling was performed through convenience sampling by letting the fleet manager at the SSC guide the researcher to possible interesting interview subjects. Convenience sampling might lead to biased results as mentioned by Bryman (2008). The ethnographic research that was performed to avoid receiving biased results presented the high level of resistance from the HSQE, technical and

accounting department that otherwise might not have been detected. This triangulation thus led to enhanced credibility and a successful sampling.

The other method for triangulation was the OCAI that was performed to validate the evaluation of the organizations' different subcultures. The different subcultures that were found were divided between departments, top management, and crew members. The result of the OCAI matched the data from the interviews regarding the departments' reflections and beliefs on the company's most important operations and strategies. The triangulation was thus considered successful and helped validate the thesis' results.

The literature review connects Kotter's (1996) eight-steps to successful change management to critical success factors of information system implementation. This heightens the generalizability of the thesis as it presents Kotter's (1996) steps as a valid and suitable change management model for information system implementation. The thesis also provides generalizability to information system implementation projects the within shipping industry which is a research area that has not been previously targeted. The generalizability for the SSC can be discussed. The SSC can partly use the thesis as guidelines for other change projects in the future by continuously working on strengthening and clearing discrepancies of their organizational culture to increase readiness for change. The researcher further argues that the connection between the issues caused by national culture and Kotter's (1996) eight-steps can partly be used to solve future organizational issues within the SSC. It is however important that the cause of the issues is evaluated and analyzed to further determine if the steps will provide solutions to the problems.

6.2 Result Discussion

The following section will build on the analysis to provide a more in-depth discussion to better reach the aim of the thesis. The national culture dimensions of the crew members will be discussed to provide a deeper understanding of the connection between the different dimensions. Thereafter a further discussion on the SSC's organizational culture will follow to increase the understanding of the present subcultures and which cultural profile that is most suitable for the SSC.

The evaluation of national culture aspects was grounded in Hofstede and Hofstede 's (2005;2004) dimensions and the research of Håvold (2007) on the culture of crew members onboard vessels. To ensure that the resistance of the employees was rightly connected to national culture, the presence of the dimensions with the employees and managers from different countries was analyzed. The analysis concluded that the crew members shared collectivistic values that might impact the implementation negatively through a lack of information regarding implementation issues onboard. However, all crew members saw themselves as an important part of the company and believed that there was strong mutual trust and commitment between the crew and the top management. This could eliminate the risk for lack of information as the crew members might realize that solving implementation issues would benefit the company and therefore do not feel the need to hide implementation issues from top management in order to protect their crew members. Moreover, the Swedish, Dutch

and Baltic crew members all showed low power distance behavior, which typically enables free communication between subordinates and managers. The crew members of the mentioned nationalities had good communication with the shore-based employees and managers. The researcher thus argues that the SSC does not need to have concern for lack of information from these crew members. Håvold (2007) noted that employees that originated from large power distance cultures showed small power distance when employed as crew members. It was found that Filipino crew members were reaching lower and lower power distance values over time. Thus, Håvold's research was confirmed, but the researcher argues that the Filipino crew members should still be evaluated from a large power distance perspective due to their lack of communication with management that seemed connected to their high authoritarian values. It is thus important for the company to carefully analyze if the implementation is proceeding as smoothly as the Filipino crew members are communicating. The lack of accurate communication from the Filipino crew members could be connected to either collectivism or high power distance. Forming a guiding coalition as suggested by Kotter's second step might thus aid the implementation process as it increases the chances of overall organization commitment and could resolve the issues linked to the collectivistic culture dimension. Moreover, foster a learning culture per Kotter's seventh step will target the high power distance of the Filipino employees and could aid the implementation process. It is also important for the SSC to search for communication issues when initiating implementation at the other vessels as the crew members of these vessels are of the same descent as has been evaluated in this research but has not been included as interview subjects for this thesis.

The analysis showed that all crew members shared high uncertainty avoidance values, which could impact the implementation negatively as this dimension can cause employees to see IT as inherently risky and thus slow down the adoption of new technologies. However, the presence of slow adoption was only found with the Baltic crew members. Collectivistic cultures tend to trust the opinions of their peers when evaluating technology. The researcher thus argues that the high level of collectivism and high commitment to and trust for the company and the top management's choices lead to higher rates of technology adoption for most crew members. However, the Baltic crew members slow adoption needs to be attended to as some Baltic employees expressed issues related to trusting the new system. Kotter's (1996) fifth step was presented as a possible solution as it involves solving issues leading to resistance as well as ensuring employees that are concerned about the new change.

Kotter's eighth step emphasizes the need for consolidating the new changes in the company's organizational culture. This step was evaluated separately in the analysis of the SSC's organizational culture. The analysis found that the subcultures that were most resistant to the new system were those that emphasized control rather than flexibility. The researcher argues that these culture profiles match the strategy and business values that the company is currently communicating. The resistance of the departments with control-emphasized culture might thus come from a mismatch between the strategy and subcultures and the perceived aspects of the new information system. There was a communicated concern from these departments that the new systems would only take time and effort from their daily work tasks and missions

without delivering great enough benefits. Even though the new system does provide benefits that match the control-emphasized subcultures, the resistance towards the system remained since these benefits were not adequately communicated. Kotter's (1996) third and fourth step might thus, as previously suggested, aid with resolving resistance issues that emerge from conflicting individual interests by providing an understanding of the benefits that fit the different subcultures' needs and demands.

The clan cultured emphasis of the crewing department contributes to the department's flexibility and receptiveness for change in accordance with Cooper and Quinn (1993), and Jones et al.'s (2005) research. Moreover, the crewing department realized the new systems' potential of assisting the crew members in their work, and therefore the system was positively received by the department. The clan culture thus does not inhibit this particular project, but this does not eliminate cultured related issues from this department in future projects with different conditions.

Cameron and Quinn (2006) described that subcultures could be a result of vague organizational culture or a complex environment resulting in different department emphasis. The SSC seems to have a strong communicated culture that the departments interpret differently. The researcher argues that the departments choose to emphasize the parts of the culture that best matches the department's needs and goals. Developing a strong culture with clear values that are emphasized in its entirety by the entire organization is thus important for the SSC to reach further success in the future.

From the analysis on the organizational culture aspects that connected the internal and external environment of the company to research, three different culture profiles were suggested as possibly suitable for the SSC. The researcher argues that the most important aspect for the SSC to consider is the external environment due to the industry's tough market. Therefore, it is suggested by the researcher that the most suitable organizational culture for the SSC is one that emphasizes all culture types equally. The vessel crew's result from the OCAI was very similar to that of the top management, and the preferred culture further matched the suggested cultured profile. The researcher argues that there are three possible reasons for why the crew's culture profile matched the top management while the shore-based departments did not. Firstly, the communication between the top management and the vessels were focused, clear, consistent and frequent, as a result of the top management's ambition for reaching overall organizational commitment. The environment at the office on the other hand was very stable, and therefore the sense of urgency of having good and efficient communication might not be as considerable. This could be a reason for why the vessels were well aware of the companies desires and goals while the shore-based department thought differently. Secondly, the crew's collectivistic values and behavior could provide a higher understanding of the organization's needs unlike the individualistic behavior at the office. Thirdly, the crew onboard the vessels meets both the external and internal environment first hand. They see the immediate result of lacking in a specific culture type. A lack of control can result in engine breakdown and thus a stop in operations, a crew member that is not focused, educated and healthy can be a threat to safety for themselves and the rest of the crew. Not reaching the customers' requirements can result in a standstill for the vessel's operations. The crew furthermore experiences consistent change in technical equipment and work

procedures, and see the result and benefits of these changes first hand. Thus, the researcher argues that the crew members have a great understanding of the importance of every culture type.

The suggested culture profile that emphasizes all culture types equally matches the company's external environment, but does not however match the company's current communicated strategy and values. This aspect has been mentioned by researchers to cause inefficiency and lack of success. Therefore, the researcher argues that the SSC should evaluate their current strategy and values for possibilities of including more adhocracy cultured values. By including values such as continuous improvement, innovation, and initiative taking, the strategy would better match the suggested culture profile, and thus the external environment and customer requirements. Changing the strategy would simplify a culture change which in turn would simplify future change projects for the company due to the flexibility of the new organizational culture profile.

7. Conclusions

This chapter provides clear, summarized answers to the aim and the research questions of the research. Moreover, implications for further research are touched upon and recommendations for the company are presented.

The aim of this thesis was to analyze SSC's information system implementation process with the intention of giving proposals for improvement through organizational viewpoints. To reach the aim it was, through an analysis of the company's current situation, broken down into three research questions. The research questions will be answered in the following section. The first research question was:

Q1: How does the multi-nationality of the SSC's employees affect the information system implementation?

This research question was answered by investigating the presence of national culture within the company, the implications of such culture, and was further connected to literature theories within the research area to find the aspects of national culture that affected the implementation process. Six aspects were found. The first aspect is the high level of individualism of the shore-based employees and top management. This aspect affects the implementation by creating resistance connected to mismatches between the implementation and the employees and managers' individuals interests.

The second aspect is the low levels of power distance of the shore-based employees and managers. This aspect lead to lower pressure to conform to the new change and proliferation of negative attitude around the office due to the employees' free communication.

The third aspect, the low levels of uncertainty avoidance, affects the implementation by raised resistance due to the shore-based employees and managers inability to realize the importance and benefits of the new system.

The fourth aspect that was found to affect the implementation is the high uncertainty avoidance levels of the crew and especially the Baltic crew members. This aspect lead to trust issues connected to the new system and possible risk of future resistance due to the aspects' connection to fear and concern for failing implementation projects.

The fifth aspect is the large power distance of the Filipino crew members. This aspect is connected to possible lack of communication regarding implementation issues due to concerns of disagreeing with managers.

The sixth aspect, the high collectivism of the crew members, was found to possibly have a negative effect on the implementation due to crew members willingness to protect their team. Even though a strong commitment to the company from the crew members was found, this aspect should still be taken into consideration.

The six different aspects are helpful when assessing the resistance towards the system that can hinder the implementation. The aspects can further be essential to investigate and analyze when performing future change projects, both for the company and other organizations. This contributes to the generalizability of this research.

After the first research question was answered, the second is responded to:

Q2: How do the SSC's organizational culture and possible presence of subcultures affect the information system implementation and how can it be altered in order to easier transform the organization in the future?

The second research question was answered by analyzing the external and internal environment of the company with grounding in organizational culture literature. The result of the analysis shows that subcultures are present within the company. The high market and hierarchy culture emphasis of the accounting, HSQE, and technical departments might hinder the implementation due to a lack of flexibility. Furthermore, the benefits from the system that matches these cultures have not been properly communicated. Kotter's (1996) third and fourth step is thus emphasized as possible solutions.

To make the organization more receptive to change, the adhocracy and clan cultures need to be more emphasized. It is suggested by the researcher that the SSC needs to implement a stronger, more focused culture that reaches the entire organization. From the analysis of the external and internal environment of the company, it is suggested that a culture profile that emphasizes all culture types equally will be suitable.

Furthermore, it is suggested as important that the company culture reflects the organizational strategy and company values. The non-flexible culture shown from the HSQE, accounting, and technical department matches the SSC's current communicated strategy. It is therefore suggested that the organization evaluates their current strategy for possibilities to include flexibility, innovation and continuous development of their company values. This new strategy and culture will provide a sustainable solution for the SSC as it makes the organization more receptive to future change projects.

Q3: How can SSC through a focus on change management solve resistance issues and improve the implementation process?

By utilizing Kotter's first step and communicating a sense of urgency for the change, the shore-based employees' low motivation for the new information system caused by low uncertainty avoidance can be increased. Furthermore, by applying top management support and presenting the reasons for the change, the SSC can resolve resistance from the Filipino crew members caused by concerns of being checked upon connected to their large power distance values.

By following Kotter's second step and creating a powerful guiding coalition with the top management, department managers and crew members the collectivism of the crew members can be moved from their specific crew to the entirety of the company.

This overall commitment can reduce the risk of lack of information on issues regarding the new system.

Kotter's third and fourth step includes creating and communicating a clear vision for the change project. By performing these steps, the SSC can solve resistance issues related to the conflicting individual interest's conflicts that emerged from the shore-based employees' individualistic values. The vision should clarify how the system benefits the company and departments' values and goals to aid the employees realize the potential of the new system. Furthermore, the resistance caused by the high uncertainty avoidance from the Baltic crew members can be targeted by Kotter's fourth step through top management commitment to the new information system.

By utilizing Kotter's fifth step that includes empowering employees to act on the communicated vision, concerned employees that are experiencing trust issues from high uncertainty avoidance towards the new system can be reassured. The top management should actively work with resolving both real and imaginary issues experienced by employees to further bring the implementation process towards success. Furthermore, by welcoming suggestions and ideas from the low power distance cultured shore-based employees and managers, the motivation for the new system might improve.

Kotter's sixth step - creating and communicating short-term wins - will aid the SSC with reassuring employees with high uncertainty avoidance. Such employees might find obstacles and slow progress connected to the system as concerning, and will thus be motivated and reassured by the knowledge of project progress.

By consolidating gains and produce more change, per Kotter's seventh step, change can persist within the company. By following through with this step and creating a learning culture by introducing feedback networks and reviewing the project, the SSC might further resolve the low communication from the Filipino crew members caused by their high power distance culture.

Kotter's eighth step was emphasized in research question number two. By incorporating the positive attitudes created by the successful implementation process into a culture profile that emphasizes flexibility, the SSC can improve their readiness for change for future change projects.

7.1 Implications for Further Research

Following the discussion, four aspects have been detected that are worth further investigation. This thesis has not been able to evaluate the vessels that have not yet initiated the system implementation. It is therefore important that the company use the frameworks provided by this thesis to evaluate the possibility of culture-related issues that can hinder the implementation when the initiation begins at other vessels. By doing so, issues can hopefully be detected and solved early in the process and thus simplify the implementation.

When considering a change of organizational culture, it is important that the company map out the aspects of the now dominant cultures that they want to maintain, and those want to eliminate. This to make sure that the culture change does not discard valuable aspects of the current culture.

The suggestion for changing the organizational culture comes hand in hand with a suggestion for changing the company strategy and values. The researcher has evaluated the industry market and customer demands to deliver this suggestion. It is important for the company to further perform their own evaluation to ensure that the result of this thesis fully matches the industry demands before implementing the changes.

The fourth aspect that needs to be considered is how the customer demands and market environment might change in the future. If the industry changes, the organizational culture of the company would need to be changed as well to fit the company strategy and the external environment. It is therefore important for the company to evaluate their strategy and organizational culture on a reoccurring basis to reach company success.

7.2 Recommendations

This section presents a series of actions recommended for the SSC to improve their implementation process and further increase the company's readiness for change to simplify future change projects. The order of Kotter's steps has been altered due to the implementation process at the SSC already being initiated. The new order has taken into account which steps are most urgent for the SSC to perform. Furthermore, it is essential for the SSC to emphasize each of these actions equally to reach success.

The first action for the SSC is to read the thesis and ensure all aspects of the thesis are understood. The thesis provides the SSC with a more in-depth understanding of their current situation and the theory behind the thesis' recommendations.

The second action is to utilize Kotter's first, third and fourth steps by creating a sense of urgency for the new information system implementation by creating and communicating a vision connected to the company's strategy and values. The employees should be reminded of the vision continually during the implementation process. The SSC further needs to continue spreading the vision to the new vessels entering the implementation process. It is important that the SSC discuss what kind of vision they want to communicate, and how this vision is connected to the company strategies and values to create the sense of urgency that is needed.

The third action is for the top management to openly show their support for the system orally and physically per Kotter's fifth step. The top management should discuss the implementation with resistant employees to reassure and motivate such employees by acknowledging and solving their perceived issues with the system. The top management needs utilize the culture dimensions provided by this thesis to continually investigate and evaluate the level of resistance from employees as the implementation process spreads to other vessels.

The fourth action is to utilize the knowledge of their employees by inviting them to workshops where the floor is open for suggestions of improvement and feedback to both the system and the implementation process. The workshops should include representatives from the crew members with high collectivistic behavior as well as resistant shore-based employees with low power distance behavior. The fourth action thus combines Kotter's second and fifth step. The SSC needs to continually invite new crew members as the implementation reaches more and more vessels. They furthermore need to consider how the workshops will be performed and if workshops via computers will be possible considering the geographical distribution of the crew members.

The fifth action is to build on the workshop initiative to create feedback networks per Kotter's seventh step that will continue on even after the implementation is finished to promote continued change focus within the company. The primary goal of the fifth action is to create a learning culture that encourages high power distance cultured employees to step forward and dare to discuss issues and mistakes with the top management.

The sixth action is to plan for and create short-term wins per Kotter's sixth step. Setting up and communicating reached goals will encourage both unmotivated employees and employees with high uncertainty avoidance to continue their efforts with the new system. The SSC needs to discuss what these short-term wins will consist of and how the acknowledgment of these wins will be performed.

The seventh action is to utilize Kotter's eighth step and the organizational culture sections of this thesis to evaluate their current organizational culture to consider making the culture more flexible. The SSC needs to evaluate their external and internal environment to consider which parts of the old culture they should maintain, which should be improved and which should be dismissed. The SSC also needs to construct an implementation plan for how the culture and strategy change should be performed. The change management sections of this thesis might aid in this process. Furthermore the company strategy needs to be evaluated to ensure that the strategy and the organizational culture is compatible. The researcher believes that the SSC's information system implementation will be successful and that the organization will become more flexible and change-ready in the future if these seven actions are properly performed.

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