The Cultural Impact on Information System Utilization

A comparative study between Sweden and Nicaragua
Abstract
Information system (IS) utilization and success are influenced by culture due to that the management is handled by individuals and their values that affects their behavior. Therefore, culture is an important aspect for implementation and evaluation of an information system and IS utilization. Some countries absorb the technical development easier than others which can be the reason for several failed IS implementations. This makes an impact on globalization due to the difficulties to implement information systems in subsidiaries.

The purpose of this research was to study the cultural impact on IS utilization by identifying the cultural factors that impacts IS utilization and furthermore how an addition of a cultural dimension in IS utilization theories can affect implementation and evaluation of an information system. To study this, the theory Task-Technology Fit (TTF) was used for the collection of empirical data which further was analyzed with Hofstede’s dimensions of national culture. The conducted study was a qualitative method with a deductive approach conducted through interviews and observations of partner companies in Sweden and Nicaragua.

The result identified problem areas in the two partner companies regarding utilization of selected systems and further, the result describes the different parts that affects a fit between the technology and the tasks it is meant to accomplish. The result was discussed with the analysis of Hofstede’s dimensions of national culture to identify cultural factors and aspects that could explain why the fit between technology and the tasks were not ultimate. The connection between culture and IS utilization are further discussed together with how the knowledge and awareness of cultural impact can provide benefits for multinational businesses. The conclusion argued the importance of knowledge contribution has due to globalization, factors that affects the cultural impact and what a separated dimension for culture in IS utilization theories could provide for the multinational businesses.
Preface
This study is a bachelor thesis within the program for Information Logistics at Linnaeus university. I want to thank all the participants that have enabled this study to be conducted, mainly from the Swedish and Nicaraguan partner company. My thoughts go out to all the Nicaraguans who have lost their lives and suffers because of the current situation that has haunted all our beautiful fellow human beings in Nicaragua.

I also want to thank Darek M. Haftor who has supported me and this research and guided me to be able to conduct this study.

Thank you!
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**Attachments**  
Attachment 1: Interview questions.
1 Introduction
An important aspect of business success is innovation. Nowadays, innovation is driven by information technology and even the more hands-on business areas, as agriculture uses computers. Information technology is one of the first recruitments of a new business and information technology is also seen as the backbone of the business (Business 2 community 2015). Although, the choice and implementation of the information systems need to be accurate for the specific business. Mardiana (2014) writes about common failures with information system project development and argue that one major reason for it is the cultural differences.

This study researches the cultural aspects of information system success through a comparison of two different countries. The countries chosen are Sweden and Nicaragua and the study presents data from the implementation of a system in one company in each country. This subject is common within the information technology area but most of the researcher’s suggestions are about to acknowledge the cultural aspects of the already existing dimensions of the theories of use. Because of the cultural importance of information system success, I will in this paper suggest a research model where the cultural dimension is added as its own in the theory Task-Technology Fit.

Because of an increase of globalization, it is of importance to highlight the cultural aspect of the information system success. Different cultures absorb the technology in different levels and with different engagement which needs to be considered to raise the possibility to implement information technology successfully. This study uses Hofstede’s cultural dimensions to analyze and understand the empirical data collected to define the partner companies’ success of their used information systems.

1.1 Practical background
During my internship project, I created a belief that the demand for efficient information management, with Information Systems (IS), will make the companies push themselves into a technical “corner”. With all the new technologies there are for companies to use, efficiency methods and strategies, it raises the risk for the companies to build new systems upon existing systems, without analyzing how the companies actually can use the existing information for its purpose, in the existing system, and by that, achieve IS success. At the Swedish partner company where the project took place, the overflow of information and systems have forced them into a position that the company needs to work their way out from the technical “corner” and by that raise the possibilities to achieve IS success. Moreover, from the implementation of their ERP system, information has been added and been built upon the existing information without any regulation. Today, the company wants to go back and reduce the overflow of information which would be a challenge for them, also for the reason that the users have reduced their use of the systems.
The used information systems in the Swedish partner company are developed and implemented by the German concern that they are a part of. A regular discussion at the Swedish company is the dissatisfaction of the management of the information system. In the large concern, that the Swedish company is a part of, there are several different countries involved that all have different cultures that affect the implementation. There is a challenge for the concern to implement an IS with success for every subsidiary which is why it is necessary to study the fact that national culture influences the implementation of the information systems and by that, also the IS utilization. The national culture aspect is of importance due to the variation of adaptation of technology that differs between countries which require a measure of the country’s overall readiness to adopt and use technology (Kovadid 2005).

For this study, Sweden is compared to Nicaragua, a country classed as a developing country which, by peda.net (n.d.), has the characteristics poverty, lack of education and general ability to read. The main reason for the selection of Nicaragua as study object for this paper is that they are the second poorest country in Latin America and that the country has been struggling with economic challenges until the middle of 1990, since a steady growth of the economy of Nicaragua has been witnessed (Globalis 2016a). Unlike Nicaragua, Sweden is Scandinavia’s foremost industrialized country with export of for example timber, minerals and hydropower (Globalis 2016b). These countries are of interest for this study due to their mainly economical differences. The purpose is to study the cultural differences in IS utilization and it will probably be a more visible difference between these two countries than if Sweden was compared to a more similar, western industrialized country.

1.2 Background and previous research

The globalization has accelerated in the same way as the technological advances in communications and transportation which links the humanity to the large network of business. This growth of technology use has also made it easier for culture to be transmitted (Brown 1999). Globalization requires a cultural understanding and according to Brown (1999), one part of the globalization process is the need to develop a culture that widely can transcend different economic, ethnic, racial and religious backgrounds.

Considering developing countries, they have recently got access to relatively well-developed, accessible and affordable IS infrastructure due to the decrease in the price of information systems. Companies in developing countries are investing in information systems to keep up with their competitors, although, the developing countries have not been as successful as companies in developed countries. This seems to be because of the overall low productivity of these companies (Ghobachloo & Tang 2015). Ghobachloo & Tang (2015) argue that this is, due to the disadvantages of management, that the companies cannot understand the resources of their IS technology and for that reason not use the functions effectively.
Failures with information project development are common and in 2013 there were 18 percent documented failed IS projects. Due to that the costs of an IS are expensive, this is considered as a high number and an IT project that is canceled or not used by users after delivery is considered as failed (Mardiana 2014). Mardiana (2014) argue for the importance of culture in IS research and the fact that culture affects IS implementation cannot be ignored. The cultural aspect is of importance because it involves individuals who are the source of behavior patterns, values, and feeling.

1.2.1 Information System Success

A system is a collection of components that work together towards a common goal with the purpose to receive inputs and transform them into outputs (Hardcastle 2011). Beynon-Davies (2013) defines an information system as “a system of communication between people” (Beynon-Davies 2013 pp.15) and explains that the information systems are involved in the gathering, processing, distribution and use of information. Hardcastle (2011) argue that the purpose of an information system is to provide information to management which will simplify their decision making. In this paper, information systems are viewed to consist of hardware, software data management, and communications technology, Beynon-Davies’ (2013) definition of information and communication technology (ICT).

Cross-cultural researchers have, among several other researchers, suggested that it is not possible to have existing models & theories and apply them in different contexts and cultures. Information technology (IT) is described by Aggouram (2009) as a main issue for multinational organizations because of the variation of the meaning of the effectiveness and information which vary in different cultures. There are several discussions about what really defines Information systems success (IS success) where some researchers argue about a mixture of the technical and social aspects of an IS. From another perspective, some researchers argue that IT and work practices are so intertwined that it is difficult to identify how each aspect contributes to the success (Aggouram 2009).

What makes the definition of IS success even more complicated is the international dimension that includes cultural terms as values and assumptions which could be the foundation of the different perceptions. Aggouram (2009) refers to Hofstede (1993) who concluded that management theories and findings do not transform automatically from one context to another. It is also argued that most of the management theories have a western perspective which means it is seen from a perspective with a western way of perceiving and thinking about the world (Aggouram 2009).

The results from the study of Aggouram (2009) claims that a system should provide relevant information to be a resource for the user to perform his or her job. The user should perform the more intelligent tasks while the system should manage the routine activities. Successful IS also have an impact on the user’s career from two perspectives,
the user, and the business, and is seen by the positive and negative effects on each (Aggouram 2009).

1.2.2 Culture and Information Systems

Hofstede (1980) defines culture as:

“Culture is the collective programming of the human mind that distinguishes the members of one human group from those of another.”

(Hofstede 1980 pp. 24)

Hofstede (1980) describes the cultural characteristics for a human collectivity as the personality is to an individual, culture can, according to this perspective, determine the identity of a human group in the same way that personality determine the identity of an individual. The term “culture” is often related to communities, nations, ethnical- or regional groups but it can also be applied to other human groups as professions, family or organizations. Norms of society lead to development and pattern maintenance of social institutions with a certain way of function as, for example, family, education systems, politics, and legalization. Due to the similarities between individual personality, the behavior of a nation or an individual also affects the culture. Hofstede (1980) also argue about the human impact on culture by within economic development where the main reason for change are not characteristics, values and attitudes. Instead, the main reason is the change of the aspects of the human’s social environment that are of relevance to the learning of new behavior patterns. Due to that humans are affected by values, we are all affected by culture which reflects on our behavior (Hofstede 1980).

According to literature, adaption, performance, and use of an IS are affected by culture. Although, culture is often underemphasized and overlooked in the implementation of new technology. The culture term is complex but one thing that all researchers agree upon is that it is related to people. According to Aggouram (2009), culture concerns a group of people with a common meaning of things around them and a shared system of meaning.

National culture is a helping concept for determining differences and similarities between different countries cultures. Aggouram (2009) found that IS success actually is affected by national culture. The author also refers to four international dimensions that have a major impact on important IS issues that are: national culture, economic structure, political & legal environment and technical status. Furthermore, the author argues that IS success is not perceived likely in different cultures, what also differs between cultures is the importance of the IS information and effectivity. According to Aggouram (2009), IS has values that refer the value priority for the cultures where the IS is developed. It is also discussed, due to the difficulties with the implementation of IS in subsidiaries, because of the impact culture can have on the implementation, how it is interpreted and what meaning it gets. Culture also affects leadership which means that culture also indirect can affect the information systems and the IS implementation directly through the user behaviors (Mardiana 2014).
Furneaux (2011) points out the importance of cultural differences that have an important impact on the theory Task-Technology Fit (TTF). The author refers to an article that studied two global organizations to research how technology helps in communication tasks where the results showed differences in culture and perceptions of TTF. Furthermore, the results also prove that technology was both a facility and an obstacle to some cultural driven behaviors in communications (Furneaux, 2011).

1.3 Problem discussion

The literature and previous research within the area IS success and culture are several and Kavadid (2005), Brown (1999), Ghobachloo & Tang (2005), Mardiana (2014), Aggouram (2009) and Furneaux (2011) all discuss the fact that culture is an important aspect that needs to be considered both in implementation and evaluation of an IS and IS success and utilization. Aggouram (2009) discusses the fact that the majority of management theories has a western perspective which also gives an understanding of Ghobachloo & Tang (2015) who discuss that developing countries has not been as successful at IS implementation as developed countries, which in turn can be the reason for the high number of failed IS implementations that Mardiana (2014) describes. Because of the cultural differences, the implementation of IS in subsidiaries is a main challenge which also affects the international market (Mardiana 2014).

In information system research, culture contributes with several benefits due to the fact that it now days are implemented in a cross-cultural environment. Implementation of an information system normally affects individuals with a different cultural background (Mardiana 2014). Mardiana (2014) also argues that the dimension “intention to use” in the DeLone and McLean Information System Success Model (a well-used theory for evaluating user satisfaction within an IS) is the dimension that can include cultural impacts. What I assume is that an actual issue is that the cultural aspect should be a dimension of its own because of the earlier researches result of the cultural importance in information system utilization.

1.4 Purpose

The purpose of this thesis is to study in which way the culture affects information system utilization. The cultural impact on IS utilization confirmed by Kavadid (2005), Brown (1999), Ghobachloo & Tang (2005), Mardiana (2014), Aggouram (2009) and Furneaux (2011) is viewed from a wider perspective which created the interest to study two countries that is further away from each other, both according to culture and social- and economic factors and to examine how two different countries IS utilization differs due to the cultural impact. Aggouram (2009) discusses the fact that you cannot implement and use different theories and models everywhere because of the differences in culture, but what if the cultural aspect is added to the theories as a specific factor that influences the IS utilization?
The addition of culture in the theories of chosen provides insight into the cultural characteristics that are expected to exist and practiced among individuals that is one of the main aspects of IS success (Mardiana 2014). Therefore, the research questions for this study are formulated as follows:

- Which are the national cultural factors that make an impact on their information system utilization?
- How can a cultural dimension in IS utilization theories affect the implementation and evaluation of an information system?

1.5 Delimitation

This thesis pertains to study the difference between a company in Sweden and Nicaragua and the impact of national culture on the utilization of information system. The paper does not pertain to study the impact of organizational culture due to the many variations of organizational cultures that the different companies in Sweden and Nicaragua possess. Another reason is that the organizational cultures also are affected by the national culture and that there are more previous studies about national culture that can be used for the analysis of the empirical data.

The study is delimited to refer to only one company in Sweden and one in Nicaragua that also have a semi-cultural influence within the organization. The amount of observed companies is delimited to only two companies to ensure that the required amount of data is possible to be collected within the set time frame. This limitation is also due to the language limitations which result in a longer process of the collection of empirical data.

1.6 Target audience

The provided knowledge from this study pertains to contribute with an insight about the importance of cultural awareness within the implementation and evaluation of an information system, mainly in multinational businesses. Therefore, the result of this study will contribute with knowledge for businesses who aims to implement a new system or evaluate the use of an existing information system. The study also aims to contribute with knowledge to the program of Information Logistics with the importance of international awareness and knowledge about the cultural differences within implementation and evaluation of information systems in international and global businesses. Furthermore, this study will contribute with knowledge and awareness for the partner companies for the study about the grade of utilization in their existing information systems.
2 Methodology

This chapter describes and motivates the scientific methods that have been used to conduct this study.

2.1 Scientific approach

The conducted research was a deductive study and expectations were created from theories and previous research before the study. According to Jacobsen (2011), the deductive approach also refers as “from theory to empirical data” due to that the expectations of how the world is viewed are primarily created before the collection of empirical data. For the literature research, the Linnaeus University library OneSearch was used and the articles were found through the search for the theories Task-Technology Fit and DeLone and McLean Information system success model. The last-mentioned was used at the beginning of the study before the purpose of the study changed direction to concern IS utilization instead of IS success. Although, several of them were still relevant for the actual purpose. Furthermore, the literature research involved the search for studies about globalization and information technology and specific research about the cultural impact of IS success and utilization.

In this study, the previous research and background created a belief that the national culture does have an impact on the utilization of information systems that have been a foundation for the conducted qualitative study. Although, the deductive approach has received some criticism because there is a risk that the researcher only searches for relevant information and information that tend to support the created expectations (Jacobsen 2011). This risk has been beheld during this research where other aspects that can make an impact on utilization of information systems (IS) has been observed and noticed to provide an overall view over the aspects that make an impact on IS.

2.2 Qualitative method

The purpose of a qualitative method is to understand what individuals do and why they do it. The qualitative method is well suited if the researcher is aiming to obtain many shades and the method often affects a few respondents. With a qualitative approach, the researcher allows the respondent to answer the questions with few limitations and openness which provides information that the respondent decide. There is high internal validity where the comprehension is defined by the respondents. Another benefit with the qualitative method is that it is a flexible method where the presentation of the problem, the structure of the research, data collection and analysis can be changed afterward if the research changes direction or is provided with new information (Jacobsen 2011). The qualitative method is chosen due to that it provides the wide aspect of the respondent’s
answers. This study aimed to understand the impact of national culture that is affected by many factors that also affects the individuals. Therefore, the research had a focus on the dimensions from the theory of chosen, Task-Technology Fit, and the answers were interpreted with Hofstede’s dimensions of national culture. Even though there are several benefits of a qualitative approach, there are also limitations to it. The method provides high internal validity but has the risk to get a problem with the external validity due to the few respondents. The researcher also needs to be open to all of the details and shades to be able to fully understand the information provided by the respondents (Jacobsen 2011). Within this study, there are limitations with the few respondents, although, the researcher is careful with the information due to the importance of all the aspects while studying national culture. The information provided does not answer for all the other companies within the country but the answers are matched and analyzed to the previous research on the national culture of the specific country.

2.2.1 Interviews
The individual, open interview is the most common method for data collection within the qualitative method. By conducting an interview like this a researcher and an information provider are talking in a dialogue and the collected data comes in form of words and sentences. The interview can be conducted either face to face or by telephone and there are no limitations of what the information provider says. This method is most suitable when there are few respondents, when there is an interest in what the specific individual says or when there is an interest in how the individual interpret and make sense in a specific phenomenon (Jacobsen 2011). The conducted interviews in this research are made over email due to limiting factors as language and distance. During this research, the researcher was placed in Nicaragua which lead to that the respondents in Sweden had to be interviewed by e-mail. The researcher had the ability to understand the spoken Spanish language in Nicaragua but not in that grade to conduct a full interview. Although, some interviews were conducted face to face with the respondents who spoke English. The interview questions were created with a foundation of the dimensions (see table 2.1) of the theory of chosen, Task-Technology Fit, and was translated to Swedish for the Swedish partner company and in Spanish for the Nicaraguan partner company. The question documents were received from the Swedish respondents the 4th of April and the 5th of April and from the Nicaraguan respondents the 4th of April, the 11th of April and the 16th of April.

<table>
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<tr>
<th>8 TTF Factors</th>
<th>16 TTF Dimensions</th>
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<td>Right level of detail</td>
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<td>Locatability</td>
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<td>Meaning of data is easy to find out</td>
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Authorization for access to data

Data compatibility

Ease of use

Training

Production Timeliness

Systems Reliability

IS understanding of business

IS interest and dedication

Responsiveness

Delivering agreed-upon solutions

Technical and business planning assistance

(Larsen, Sørebø & Sørebø 2009).

2.2.2 Observations

While conducting an observation, the researcher observes how people behave in different situations and takes notes. Observations are different from interviews and are well suited when there is an interest to register what individuals actually do and not what they say that they do or if there is an interest to register behavior in a context. The main purpose of observations is to register an individual’s or a group’s behavior and observe what they do instead of question the individual about what they do (Jacobsen 2011). For this study, the observations were used as a complement to the interviews and also to get a clearer understanding of the business that the systems are a part of. The observations of the Swedish partner company were conducted during fall 2017 when the researcher conducted an internship within the area of warehouse and information systems and with that gained information of the system and the users’ way of work. The observations of the Nicaraguan partner company were conducted both in their factory and the store where they use the studied system. There have not been any observations about the use of the system overall, the purpose of the observations was to understand the area where the system is used and also the rest of the business outside of those who actually work with the system.

2.2.3 Assortment

The assortment of this study is made to intend the users of the studied systems within the two partner companies. In the Swedish partner company, the users are the ones who work in the warehouse to pick the orders and the interview questions were sent out to everyone that works in the warehouse to answer. In the Nicaraguan partner company, the users of the system are the ones who work within the management area. The answers received
came from the store/sales manager, quality control and responsible for analysis and operation.

2.3 Implementation

This study began with a preliminary investigation within the area information systems (IS) and the impact the aspect culture has on the utilization and success. The articles that created the foundation for this study is based on previous research about IS and culture where some of the articles have the foundation within IS and some of them in culture with some impacts from the area about technology and culture in globalization. These articles were used due to their wide area that includes both culture and IS and many of the authors also argue advantages and disadvantages which provided the preliminary investigation with a critical foundation that balances the foundation of the study.

The interview questions for this study are framed to be able to answer and rate the dimensions task characteristics, technology characteristics, performance impacts, and utilization of the theory of use, Task-Technology Fit (TTF) (see attachment 1). The questions were formed from the aspects that define each dimension and all the respondents got information about the study in the e-mail that included the questions together with an explanation to why the study is necessary and an introduction to the subject and encouragement to think widely and answer with as detailed information as possible.

The results from the interviews were compiled with a foundation from the dimensions from TTF for one country at a time and where the answers from the interviews were compiled together get an overall view over the information from each country. The response rate was higher from the Swedish partner company than the Nicaraguan partner company and there are also fewer users of the system in Nicaragua. In the Nicaraguan partner company, the questions were sent out to six users that daily works with the system and there were only three responses. One week after the interview questions were sent, I sent a reminder which lead to these three answers but three of them were still unanswered. From the Swedish partner company, the responses came within one or two days and the reason for this could be that the respondents already had knowledge about me and knew me since before when I was conducting my internship with them.

2.4 Analysis

The interview questions were conducted to be able to answer and define the dimensions in the Task-Technology Fit theory and were designed after the factors that the dimensions include. Jacobsen (2011) argue that the purpose with interviews is that the researcher should not make an impact on the information, or at least be aware of the impacts. In this case, the information had an impact from the researcher, due to the design of the interview questions, although, the answers themselves were fully up to the respondent to answer. The process of analyzing data from a qualitative research is to systemize and categorize the data through a reduction of information to get an overview of it. Following, the data is interpreted and the researcher is searching for intentions and reasons to be able to reduce
the diversity (Jacobsen 2011). By categorizing data, the studied subjects are highlighted and the categories are created from the text. The data is collected into groups which is necessary to be able to compare the different texts and information. To be able to categorize, relevant categories from the data are created and further, the information units are transferred to the categories (Jacobsen 2011).

For this study, the interview questions were designed after different categories in the beginning and further analyzed through these categories. The different factors that define the dimensions were the foundation for the question and the dimensions task characteristics, technology characteristics, performance impacts, and utilization were the categories that the data was transferred into. Even though the questions were structured, all the data was analyzed to be transferred to the categories. Some of the questions were misunderstood and therefore, the information from some of the questions was more relevant to another category than the one they were supposed to fill.

2.5 Reliability
One demand for a research is that it needs to fulfill reliability. To confirm the reliability of a study, the terms validity and reliability is used and defines different types of reliability. Validity means that the empirical data must be valid and relevant and reliability means that the empirical data must be reliable and credible. Validity stands for that we measure what we aim to measure, that the measured aspect is relevant and that what we measure applies to several. Reliability stands for that the research can be trusted, is conducted in a credible way and often it is helpful to ask the question “would we get the same result if we conduct the research one more time”? (Jacobsen 2011). For this research, the purpose is to study information system utilization and the impact of national culture. The qualitative research that was conducted with designed interview questions that had a foundation in the theory of use, Task-Technology Fit (TTF), to answer the questions that defined information system utilization. Therefore, the study has been valid and also relevant for the research purpose. For the reliability there is a need to confirm if the collected empirical data can be trusted (Jacobsen 2011), although the qualitative research that was conducted for this study was through interviews of individuals, there can always be a lack of reliability. To minimize the risk to receive unreliable data in the interviews, the respondents are anonymous in the presentation of the empirical data. This is due to the risk that it could be uncomfortable for the respondents to answer if they believe that the answer can have an impact on their opinion of the system if they don’t want it to be heard of the higher hieratical level of the organization. There can also be a risk with misunderstanding of the interview questions, these interviews were made through e-mail which made it more difficult to ask completing questions and for the respondents to ask if they did not understand the questions. Some of the respondents did misunderstand the questions, although, the answers could be understood and interpreted due to the conducted observations of the companies.

To ensure the reliability of the empirical data, the interviews were complemented by observations to get an understanding of the business themselves. The examiner had
knowledge from the Swedish partner company before the collection of the empirical data which lead to a deeper understanding of the empirical data which were interpreted with the knowledge gained before the study. When it comes to the Nicaraguan partner company, there was conducted observations before the collection of empirical data in the form of observations combined with general conversations with respondents and other employees in the company. The observations made the empirical data clearer to interpret and also to have other perspectives while analyzing the empirical data.

2.6 Ethical considerations
According to Jacobsen (2011), there is a risk that researchers conceal the purpose of the study due to that individuals often tend to act differently in a research. This can be due that the individuals do not want to reveal their true self, they want to satisfy the researcher or that they want to appear in a different way. There are three basic requirements that should be fulfilled; informed approval, the requirement on private life and requirement to be fully reproduced. The informed approval referring to that the respondents voluntarily participating, the right to private life referring to that the respondents have a life that will not be researched and accurate data referring to completely reproduced data as much as possible (Jacobsen 2011). This study aims to study the cultural impact on information system utilization, this means that the main factors to study are the national culture and the factors that influence the utilization of the information systems. The data is collected from individuals but although it does not define the individuals themselves. The interviews were sent through e-mail which lead to that some responses were not received. The respondents were not forced to participate but they got the information about that the information was anonymous and what the responses would participate to. There was no risk to intrude into the respondent’s private life because it is not of interest for the study, the national culture is defined through the overall national culture for the nation and not for the individual itself but the use that the respondents describe was used to interpret the cultural impact. The collected empirical data was not presented exactly from the interview questions, it was interpreted and analyzed altogether. If someone would question the result of the study, both the researcher and the respondents have a copy of the interview with answers since the document was filled in by the respondent and sent back through email.

3 Theory
The following chapter describes information and culture theories in use for examining, describe and analyze the results of this study. Studied theories are Task-Technology fit model and Hofstede's six dimension-model. Task-Technology fit is chosen because of the dimensions it contains. The dimensions described and viewed in chapter 2.1 are all connected to individuals which means that there automatically occurs a cultural impact within the theory. Although, the dimensions do not directly describe that there is a cultural impact, which is why this theory is chosen to add the cultural dimension of its own. Professor Geert Hofstede conducted one of the most comprehensive studies of how the workplace are influenced by culture. Geert Hofstede’s most popular book “Cultures and
Organizations: Software of the mind” has been translated into twenty different languages which makes it a relevant theory to use in this study about national culture. Hofstede is specifically recognized internationally for his development of the first empirical model of dimensions of national culture which has raised the knowledge about cultural aspects of international economics, communication, and cooperation (Hofstede-Insights 2018a).

3.1 Task-Technology Fit Model

Task-technology fit (TTF) points out the importance of acceptance and fit between technology, the users, and their tasks to provide effectiveness. D’Ambra, Wilson & Akter (2013) argues that the theory is a powerful model to analyze adaption and use behavior in an Information system (IS) in a specific context. The use of TTF has increased within the area among IS and the theory argues that the use of an IS and performance is achieved when it is well adjusted to the tasks that need to be performed (Furneaux 2012).

Within the area of technology acceptance and utilization, there are many theories that could be used in this study due to their focus on people and the environment. The purpose of the theory called “Technology Acceptance Model” (TAM) is to explain user’s motivation through three factors of perceived usefulness, perceived ease of use and attitude towards use (Taherdoost 2018). The Social Cognitive Theory (SCT) uses the factors of behavior, personal and environment both as individuals and group behavior (Taherdoost 2018). By studying culture that is practiced by people, these theories could be well-suited theories for the purpose. The aim for this study is although to examine the cultural impact of IS utilization with the belief that the culture also affects not only the use from the personal perspective but also the way the technology is affected and affects the use. SCT could be an alternative due to the factor “environment” where both the national culture and technology part could be included. TTF is although chosen to provide a clearer perspective for the purpose of the study with the belief that the culture affects both the personal way of use, but also the way a system is chosen and implemented.

The main focus of TTF is the individual impact that refers to improved effectiveness, efficiency, and higher quality. The fit between task and technology has the purpose to increase the likelihood of usage and performance impact considering that the technology meets the needs of the task and requirements of the users more closely. The TTF model is suitable when the purpose of a research is to investigate the actual usage of the technology (Lai 2017). The TTF model has an advantage with its focus on tasks that is a main aspect of IT usage because of the fact that it is a tool for the users to complete their tasks. D’Ambra, Wilson & Akter (2013) argues that the TTF model is not as developed as some other theories and TTF is an important user evaluation construct with the purpose to understand and predict the use of a certain technology. The research model includes the aspects of Task, Technology, Performance, and Utilization, viewed in figure 2.1 (D’Ambra, Wilson & Akter 2013).
Figure 2.1: Task-Technology Fit model (Lai 2017).

Tasks are defined as actions achieved by individuals in the transformation of inputs to outputs to provide their informational needs (D’Ambra, Wilson & Akter 2013). Task characteristics include the ones who can make a user rely more on certain aspects of the information technology (Tripathi 2015) and can be task non-routineness, task interdependence and time criticality. Tasks that are supported by IT can appear in organizational- and non-organizational context and in work- and nonwork context (D’Ambra, Wilson & Akter, 2013).

Technology is the tools used to execute tasks and can be, for example, hardware, software, data etc. It is the attributes of the technologies that can affect usage and the user perception of the technology. Again, the main thing in the TTF model is the importance of the fit between the functionality and attributes to the technology used to meet the individual needs and a better fit will improve the perceived performance (D’Ambra, Wilson & Akter 2013).

Performance is the achievement of a series of tasks by an individual. High performance means a high level of task and technology fit and satisfaction with the IT, high TTF will, therefore, increase the impact of performance of the system (D’Ambra, Wilson & Akter 2013).

Utilization is presented as the beliefs of using a system. TTF should be a decided conviction of the usefulness and importance of a system and the advantages gained from the usage (D’Ambra, Wilson & Akter 2013). Utilization is also seen in the behavior of involving the technology in the performance of the tasks. The impact of TTF on utilization is a link between the task-technology fit and the beliefs about the consequences of using a system due to that TTF should be one determinant of if a system is believed to be more useful, more important or provides a relative advantage (Tripathi 2015).
The individual role in the use of IT is a significant role in IT use and adaption. There are four essential attributes for the IT use construct; IT use, IT user behavior, IT user processes and time. The IT use and user perspective of TTF examine the correspondence between the functionality, task requirements and individual abilities of an IT system (D’Ambra, Wilson & Akter 2013). Characteristics of the individual can be training, motivation and computer experience and these factors could affect how well or simple the individual will utilize the technology (Tripathi 2015).

The main usage of the TTF model is to measure the fit between the characteristics of tasks and technology. For this, there are several factors consisting dimensions to enable measurement of the “fit” (Larsen, Sørebo & Sørebo 2009). The aim for TTF in this study is not to enable a profound measurement but to be used as a metaphor to define the fit between the partner companies’ tasks and technology and how this fit could be affected by their different national cultures. These dimensions and factors are although used to create the interview questions, see chapter 2.2.1.

3.2 Hofstede six dimensions of national culture

One of the most comprehensive studies about the cultural influence in workplace values was conducted by Professor Geert Hofstede. Hofstede defines culture as:

“The collective programming of the mind distinguishing the members of one group or category of people from others.”

(Hofstede-insights 2018b).

Research made by Professor Geert Hofstede, Gert Jan Hofstede and Michael Mikov with teams is the foundation of the six dimensions of national culture. The Hofstede-model of national culture consists of six dimensions that represent independent preferences that distinguish countries from each other. Culture can only be used meaningfully through comparison because of the fact that we are all humans and unique individuals which leaves the country scores relative. The six dimensions are: Power distance index, Individualism vs. collectivism, Masculinity vs. femininity, Uncertainly avoidance index, Long-term orientation vs. short-term orientation and Indulgence vs. restraint (Hofstede-insights 2018b).

From Hofstede’s six dimensions, only four of them is used for the analysis of this study. The dimension Long- or short-term orientation is not used due to the lack of information about Sweden in this dimension at Hofstede-Insights (2018) and due to the lack of information about Nicaragua in this dimension at Dietetics in Nicaragua (n.d). The last dimension Indulgence is not used due to that this dimension rates the factors of an individual’s indulgence which is not of any specific interest or focus in this study.

Power distance index (PDI) handles the question of how a community handles inequality among people by grading how the less powerful members of a society expect and accept
the unequally distributed power. Low power distance means that people want to equalize the power distribution and demand justification of the power inequalities while people in high power distance societies accept a hierarchical order (Hofstede-insights 2018b).

Individualism versus collectivism (IDV) describes individualism as when there is an expectation of individuals to only take care of themselves and their closest families. Collectivism, in other hands, stands for an individual’s expectation of their family and group members to look after them and give their loyalty in return. When a society is graded in this dimension depending on if people’s self-image is defined as “I” or “We” (Hofstede-Insights 2018b).

Masculinity versus Femininity (MAS) can also, in the business context, be seen as tough or tender cultures. Masculinity stands for a more competitive society and the characteristics of masculinity are for example achievement, success and material rewards. The feminine societies are more consensus-oriented and the characteristics are, among others, quality of life, cooperation and caring for the weak (Hofstede-Insights 2018b).

Uncertainty avoidance index (UAI) handles individuals discomfort with uncertainty and ambiguity with the main question of how the society deals with the fact that the future never will be known. The differences can be described as “if we should just let it happen” or try to control it. A country with low UAI has a more relaxed attitude about the future and practice counts more than principles. A strong UAI contains stiff codes for belief and behavior (Hofstede-Insights 2018b).

Long-term orientation versus short-term normative orientation (LTO) handles the following two existential goals, maintaining links with its own past and to manage the challenges of the present and the future. The “Low-LTO countries” prefer traditions and norms, as well as they are skeptical of societal change. The “High-LTO countries” encourages thrift and efforts in the modern education to prepare for the future (Hofstede-Insights 2018b).

Indulgence versus restraint (IND) handles the grades of the indulgence of a society that encourages individuals to enjoy life and having fun by enabling the satisfaction of natural human drives. Restraint means a regulation, with strict norms, of needs by suppressing the satisfaction (Hofstede-Insights 2018b).

3.3 Research model
For this study, Task-Technology fit model will be used to determine the partner companies fit between their task characteristics and their technology characteristics. The collected empirical data will further be analyzed with Hofstede’s six-dimension model to understand the cultural impact of information system success. Figure 2.2 illustrates the research model used in this study, with a foundation of TTF and with an addition of cultural characteristics from Hofstede’s six-dimension model.
This chapter presents the collected empirical data for this study collected through the conducted interviews and observations. The empirical data is collected into categories after the theory Task-Technology Fit’s dimensions: Task characteristics, technology characteristics, performance impacts and, utilization.

4.1 Empirical data

4.1.1 Partner companies and systems

The Swedish partner company is a steel supplier and pipe specialist that provides products to customers in the construction-, engineering- and process industries. The company is a part of a larger international concern and have both their warehouse and production center in direct adherence which enables delivery to the customers in the specific time they need it. The studied information system within the Swedish partner company is called X-Browser and it works as a warehouse management system used by the operational level of the company. X-Browser is, to some extent, connected with the company’s Enterprise Resource Planning system (ERP system) but is only used by the users that work in the warehouse. X-Browser is also mainly used in one specific area in the warehouse due to network and hardware limitations.

The Nicaraguan partner company is a furniture manufacturer committed to reforestation and sustainable management of tropical forests and add value to tropical timber species all the way from planting the seed to the finished product. The company manages timber plantation in Nicaragua and exports to various markets in Asia, USA, Caribbean and Central America. They manufacture solid hardwood furniture from their sustainable hardwoods which they sell in Central America and the USA, their factory is placed outside of Managua, the capital city of Nicaragua with stores placed in Managua and in Nashville, USA. The studied information system within the Nicaraguan partner company is called
Monday and is a team management software, mainly used by the strategic level in the company used to improve an overview overproduction, spread information and communicate.

4.1.2 Tasks
As named above, the ones who use the studied system X-Browser in the Swedish partner company is the operational level and mainly the users who work with stock picking, inventory, and inlay of material. For these tasks, X-Browser is used to register the picking of the orders, the inlaid material, moved materials and print tags for materials. The orders are firstly scanned by a scanner connected to X-Browser that reads the order number and identifies the order information. To manage these tasks, the users need the order information as a material number, quantity, size, customer and route of delivery which they get access to from the physical order and that transfers into X-Browser when the user scans the barcode of the order. For the tasks performed more rarely they also need the information of order history, quantities, amount units and stock balance.

The tasks for the strategic level of the Nicaraguan partner company varies within the positions in the company. Mainly the tasks for the users are quality control, overlook and review of the processes, manage orders, communicate with the design team, follow up orders, calculate several types of costs and analysis of costs and payments within the different work areas. To accomplish these tasks they need order information, the name of the client, type of product, material species, quantity, inventory and information about where in the process the order is located.

4.1.3 Technology
X-Browser is a software that was developed for the concern that the Swedish partner company is a part of. The system is mainly used together with the computers located in stations in the warehouse but was at the beginning used on a portable device that the users could bring out to the warehouse. Except for the computers, other hardware’s as scanner and tag printer is used and necessary for the users to accomplish their daily tasks. Even though this system is their daily tool for their work, they must complement X-Browser with the company’s ERP system, SAP. The orders that the users work with are created in SAP and printed with information from SAP. The information that the users need to perform their daily tasks is therefore not provided by X-Browser. Although, X-Browser is compatible with SAP and when the users scan the orders, the information appears. The users find the system easy to use and perceive that the system is flexible and rapid. Due to the workstations that are located in the warehouse, the users perceive the system’s access as good. Although, there are some users in other positions in the warehouse that does not have their own access to the system and must use someone else’s if they need to use it. The same goes for the users who gather materials by truck, due to network limitations they do not have the possibility to use the system in other locations than in the warehouse. Because of their access to SAP, the users do not need to summon support if the system would not work. The same tasks can be accomplished in SAP and there is also an absence
of support for the system. X-Browser was developed internally within the concern and as it is today, they do not have anyone who is responsible for the support. Several users although perceived that they must summon support every day and this is believed to be because of the daily errors that occur in the system. When these errors occur, they need to use SAP instead, ask a colleague or try to repair the issues of their own.

Monday provides an overview over the orders for the Nicaraguan partner company. Due to this, the users are able to track the orders and check up on their status. All users have access to the same information which provides efficient and correct fulfillment of the work orders. Monday is also a platform for communication within the company and the users have the possibility to send notifications to each other directly into a specific order. Except for the specific notifications, they can all see the status of each order and with this confirm if the order sticks to the deadline or not. Some users do need to use other systems to perform their daily tasks, for analysis and calculation Monday does not provide what the users need and therefore they must use for example Excel. The information that the users need to use Monday is order information such as the name of clients, type of product, species, and quantity and are with this information able to easily get an enlightenment about the order. The users although have a perception that Monday needs to have some functions that they can obtain from Excel, because of their need to calculate, it would be a major advantage to be able to accomplish those task within Monday. Monday is perceived as a simple system that is easy to learn and makes it easier to schedule orders by entering accurate and concise information. Before Monday, they only used Excel and sent the document through e-mail, unfortunately, there was a risk that the templates were not changed which made it difficult to track the correct order. Monday provides templates for each new client and order which provides more efficient information. The users have the possibility to use Monday either from the computer or from their cell phone where they have an application to provide the information. Monday was implemented in the company the year of 2017 and since then the majority has not been in any situation where they had to summon support, although one user had to use support for about five times since it was implemented when the system did not update some types of data.

4.1.4 Performance impacts

For the Swedish partner company, X-Browser provides the users with agility and simplicity where the users are able to perform their tasks in a more effective way than in their ERP system SAP. Although the system has a low quality due to that it does not always work. The problem with the system is undefined and when the problems occur, the users must use SAP to perform their task, the problems also occur in different types of stages in the system and there are no common factors in the orders who provides the error. X-Browser was created specifically for the companies in this concern with a foundation in the German part, the organization was provided with developers who custom-made the system. Today, the only country who uses X-Browser is Sweden and they also have the requirement to use it even though the other countries do not use it anymore. The users do perceive the system as positive, simple and flexible – when it works and there is a
frustration among the users that there are daily issues with the system and they still have to use it. X-Browser’s purpose was to reduce the amounts of errors and the users do perceive that it is easier to miss information or make wrong decisions but due to the lack of quality with the system, most of them still prefer to work with SAP. There is also a lack of possibilities in the system and the users cannot perform tasks as for example inventory and register of incoming goods which still forces the users to use SAP. Therefore, X-Browser has the capability to provide the users with an improved efficiency and simplicity but the lack of quality and the daily errors results in a system that does not improve the user’s performance.

Monday provides the Nicaraguan partner company with simplicity, an overview of orders, accurate and easy provided information and improved communication. The purpose of implementing Monday was to improve the internal communication and provide a platform for communication instead of only e-mail and excel documents transferred by e-mail. The system improves the communication in ways of one platform for all the order information which are available for all the users, through this platform they can also leave notes and change orders if necessary. It is desirable for some users that the orders can be locked due to some problems that occur with changed order information where there is no function to view who changed it and why. When the order information is added into the system, there is one responsible in the factory who follows up the orders and update it through the process, the amount of orders is about 2000 that in some ways be inefficient. Another system that they use is called Shopify.com and this system can also be used for communication but it is perceived as inconvenient to manage the same information in two systems. Monday is seen as a tool that provides necessary information in one single platform as a whole which facilitates the organization of data for better management of the internal information as well as communicate and record this information. For some users, Monday is a well-used system where they can perform their most important tasks, for other users it is not as well-used due to the requirements they have on their daily tasks. This system is available both on a computer and on a smartphone but for some users, this is inefficient due to the need of rapid access to certain information and that the system does not provide a search function which is problematic when the user is out of office and needs the information immediately. The performance impacts of Monday are therefore positive for some users who regularly use the system and information and provides efficiency to their work. Although for some users the system is inefficient due to that it does not provide them with the functionalities that they need. For them, Monday provides them with information but it is easier for them to use other systems for their own efficiency.

4.1.5 Utilization

The users at the Swedish partner company mostly use X-Browser because of the requirement from the organization. The users appreciate the system when it comes to registering production orders and the majority of them prefer to accomplish this task in X-Browser. X-Browser is used daily in the warehouse inside but there are difficulties to use
in the outdoor warehouse because of the lack of network which forces the users to use SAP instead. The users are forced to use SAP today due to that many of the important daily tasks cannot be performed in X-Browser. The tasks that they must perform in SAP is to release materials, search for order history, quantities and amount unit’s etcetera. X-Browser was, as named above, created to provide more efficient and safe picking and was at the beginning used by portable devices but due to the type of materials and other factors the users could not use them and prefer to use either the computers or SAP instead. For X-Browser to be used and appreciated, the system must be able to be used without errors and with more functions that are required for the user’s daily tasks. If the system could provide an error-free way of performing all of the user’s tasks in the same efficient and simple way as today, the system probably would raise the grade of utilization and be more appreciated by the users.

The purpose with the system Monday at the Nicaraguan partner company was to improve the communication and spread of information internally in the company. Today there are about ten users of the system and all of them have different positions in the company and with that also different tasks. A common use of the system is to communicate with different users and also to communicate order information with other users, another use of the system today is to get an overview of the orders, track orders and check up order status. Although, the users need to use several other systems, mainly excel, to perform their most important tasks that include for example calculating. There is also a difference between the different positions where the sales area use Monday for their daily work to add sales information or to check up on order status for the customers. Compared to the use from other areas sales is the area who uses the system the most where other users appreciate the use to five percent while the other 95 percent is the use of excel. Even though many of the users complement Monday with other systems it is a daily tool and all the necessary order information is mainly provided through Monday. There could be a belief that this result in a forced way of using Monday but in some situations, the information is still provided through e-mail but the majority still chooses to use Monday for information supply.

4.1.6 Empirical Summary

The Swedish partner company is a well-established company that has been on the market for over 90 years. Since the year of 1985, they are owned by the German concern. The studied system in the Swedish partner-company is called X-Browser and is a warehouse management system used in the warehouse to simplify the management of tasks. Although, the system does not provide the quality needed to use the system due to daily errors and the users always back up the system with their ERP-system SAP. SAP is the system that provides the employees with information to perform their tasks in the warehouse and X-Browser is used to register the orders when the work is finished. The same task can be performed in SAP but due to restrictions from the German concern, the users are forced to X-Browser. Other daily tasks for the warehouse employees, as inventory, can only be conducted through SAP and the Swedish partner company is today the only company in the concern that uses the system when everyone else has phased out
it. For the Swedish partner company, the X-Browser is an inefficient system due to the lack of quality it provides and the lack of development possibilities which leads to oppositions for the users to use the system.

The Nicaraguan partner company is a manufacturing company that produces furniture in Nicaragua with a founder and owner that is American. The system of use, Monday, is used by the strategic level of the company that uses the system for varying tasks where it provides the user with an overview over order information and order status. Monday also provides the company with a unified information management that also simplify the user’s communication and makes it more effective with the possibility to use the system both through the user’s computers and telephones. Although, the system could provide more efficiency and raise the performance if the system was used by more people at the producing part of the company.

4.2 Result analysis

The following chapter contains an analysis of the presented result viewed from Hofstede’s dimensions of national culture. The analysis interprets the result conducted through the theory Task-Technology Fit for the Swedish and Nicaraguan partner companies and is analyzed through the dimensions. Nicaragua is not a part of Hofstede’s studies and therefore, another study is used where the authors have analyzed the Nicaraguan culture against Hofstede’s dimensions.

4.2.1 Power distance index (PDI)

According to Hofstede-Insights (2018), Sweden has a low score on the power distance index which argues that Sweden has the characteristics of being independent, equal rights, superiors accessible, coaching leaders and a management who facilitates and empowers. Managers often count on the team members experience and the power is decentralized at the same time as control is disliked with an informal attitude towards managers. Due to these Swedish characteristics, there is a difference from the Swedish partner company’s way of handling the issues with the system of use, X-Browser. According to the users, they are better off without this system and for them, it would be more efficient to use only SAP for continuity. Although, the managers in this company have noticed the problem and the fact that the users do not want to use it because of the errors and inefficiency but they are held back from the concern in Germany. Today, Sweden is the only country that uses the system and the subsidiaries in other countries have shut it down and do not use it anymore, the concern does no longer provide any support or development for the system so the Swedish partner company is stuck in a situation where they cannot use the system for the purpose it was made for. The concerns management of the situation created a belief that the German power distance index would be different than the Swedish and that they promote more control, but as it turned out they are on the similar score as Sweden. According to Hofstede-Insights (2018), German is supposed by a strong middle-class
where co-determination rights are extensive and must be considered by the management and where control is disliked. Due to these characteristics, German is not far away from Sweden when it comes to PDI, although, Hofstede-Insights (2018) recommend that the management must consider co-determination but this does not confirm that the companies in Germany do it. For this reason, there would be a benefit for the concern to take the subsidiaries opinions into consideration to improve the business as a whole.

Most Latin-American countries have a high score of power distance with characteristics of respect towards leaders and generally accepted hierarchies (Dietetics in Nicaragua n.d.). This belief is seen overall in Nicaragua and can also be observed in the Nicaraguan partner company. One consistently characteristic that differs from Sweden is how the Nicaraguans address the managers with “Mr, Mrs or Ms” before their name. Coming from Sweden this way of speaking about their managers were unusual and also to view how the employers at different levels approach the managers. While walking through the factory together with the founder and CEO at the Nicaraguan partner company it was clear that the factory workers at the operational level do not speak to the higher boss and vice versa. Although, it did not seem as the manager required this kind of treatment but in the same way it was not something that was seen as wrong. The founder and CEO of the Nicaraguan partner company is an American and according to Hofstede-Insights (2018), the United States has a somehow higher score than both Sweden and German on the PDI but not over 50 percent. Due to this, it can be interpreted that the PDI for the United States has the characteristics of that the power distance is not as high as the Latin-American countries with the clear distance between hierarchies but it is accepted if there are differences. For this, there can be interpreted that the Nicaraguan culture has the high power distance while the American culture accepts it and that the gap between the hierarchical levels will not be covered as long as it works for the business.

4.2.2 Individualism versus collectivism (IDV)

Sweden is an individualistic society where individuals are expected to take care of themselves and their closest families. In an individualistic society, offense creates guilt and a loss of self-esteem and the relationship between employer and employee is based on mutual advantage (Hofstede-Insights 2018). Germany has a similar score to Sweden and is also scored as an individualistic society where they have a strong belief in the ideal of self-actualization through personal growth. Loyalty is in Germany based on personal preferences for people as duty and responsibility, they also promote a direct communication and learning from your own mistakes (Hofstede-Insights 2018). In the Swedish partner company, they work mostly together as a team with their personal interests put to the side, although, there are some groups who work more together and therefore also have a more observed relation. This answers to Hofstede’s opinion that individualistic societies take care of themselves and the closest family, where the closest friends also can be included. The problem here is that a lot of the problems are discussed within these groups and in some cases, does not reach to the managers. There is also many of the employees that have lost their trust in the management due to that nothing is
improved with the system X-Browser and considering the discussion of exchange this system with another, the employees do no longer have faith and belief in a successful implementation of systems in the company. Due to the German individualistic society, the self-actualization could be a reason for the lack of engagement from the concern regarding the Swedish interest to stop using X-Browser and they might expect the Swedish subsidiary to handle the problem and make the decision of their own.

In Latin-America, loyalty and the commitment to a group is important aspects and to be a part of a group has a greater value than individuality (Dietetics in Nicaragua n.d.). Compared to Sweden and Germany, Nicaragua is not as individual and they prioritize to be a part of a community, although, the family is still the major priority. Though this does not mean that the individuals are more open to everyone and what has been personally viewed, it is sometimes the opposite. Nicaraguans have their groups of friends, families etcetera but if you come from outside, it is not as simple to be a part of this group. This has been seen in for example universities in Nicaragua where foreign students have had difficulties to interact with the groups of Nicaraguans in the school. The same situation can be the reason for the hierarchical gap described in chapter 4.2.1. These two dimensions about power distance and individualism/collectivism could be a reason for the hierarchical gaps in the Nicaraguan partner company. As named above, the founder and CEO of the Nicaraguan partner company is an American and the United States have, according to Hofstede-Insights (2018) an even higher score of individualism than Sweden and Germany and they argue that the majority of Americans have difficulties to develop a deeper friendship, that they are used to integrate with people they do not know and that Americans expects to be self-reliant (Hofstede-Insights 2018). It is interesting to reflect around this difference between the Nicaraguan collectivism and the American individualism due to the hierarchical gap described in chapter 4.2.1. If the Nicaraguans, who are collectivistic tend to commit to a group and the American culture is individualistic due to being self-reliant, it is a challenge to break the barriers and erase the hierarchical gap due to the other factors that affect the gap.

4.2.3 Masculinity versus femininity (MAS)
Sweden is rated as a feminine society and the balance between life and work is important as well as making sure that everyone is included. Managers are expected to support the people and people value equality, solidarity, and quality in their work life. The term “lagom” means that something is not too much or too little and with that people make sure that everyone has enough and that no one has nothing. The Scandinavian concept “Jante law” advise people not to brag or try to stand above others (Hofstede-Insights 2018). Germany is rated as a masculine society where performance is highly valued and is required early due to that the school system separates children at the age of ten. People rather “live to work” and receive high self-esteem from their tasks, managers are expected to be decisive and assertive while status often is shown through material things (Hofstede-Insights 201). This difference between Sweden and Germany is interesting and could explain some of the problems that occur in the Swedish partner company among X-
Browser. While Sweden is cautious while managing conflicts and their aim to make decisions through engagement it could be a gap between the German aim for performance together with decisive and assertive management (Hofstede-Insights 2018). The people in the Swedish partner company often explain the issue with the lack of care from the German management of the situation while the Germans actually might expect the Swedish company to make the decision themselves. Instead of just make the decision and stop using the system, it might be approved to just do. According to Hofstede-Insights (2018), Germans are value performance and if the Swedish partner company would make the decision to phase out the system and with that improve the efficiency, this would more likely be approved.

Nicaragua is seen as a masculine society and the term “machismo” is well used in both Latin-America and Nicaragua which describes exaggerating masculinity. In lower classes, the gender roles are clearly differentiated and where the women have fewer opportunities and the women are most likely to be responsible for the home and for cooking (Dietetics in Nicaragua n.d). In the United States, school and work builds upon common values about the ambition for people to be the best they can be and that the winner takes it all. There is a “can-do” mentality where people always tend to believe that there is a possibility to do things better. The United States has a raising inequality that endangering the democracy and with these larger gaps the power distance will be pushed up and the individualism will go down (Hofstede-Insights 2018). In the Nicaraguan partner company, both the Nicaraguan and the American masculinities are seen but what differs is that there are many women in management in the company, but also in the factory. In the factory, there are differentiations due to that the men are working in the carpentry part of the production while the women work with the finishing and decoration. There are differences within Nicaragua overall too, in the capital and larger cities there is a lot of working women but in the “normal” household the men work and the women take care of the house and children. In the Nicaraguan partner company, there is a wide variation of men and women and the genders are perceived as equals. This seems to be due to the American influence in the company where women and men are equal, at the same time as the hierarchy is clearly divided.

4.2.4 Uncertainty avoidance (UAI)

Sweden has a low score and with that low preference for uncertainty avoidance. The tendencies for societies with a low score on UAI have a relaxed attitude where practice counts more than principles and aberration from norms is tolerated. In low UAI societies, people believe that there should be no more rules than necessary and that they should be removed if they do not work. Schedules are flexible and hard work is done if there is a need, but it is not for the personal sake and innovation is not seen as a threat (Hofstede-Insights 2018). Compared to Sweden, Germany have a high score on uncertainty avoidance and they have a strong preference for the deductive way of think, present and plan instead of an inductive. Details are of importance to secure that a project is well thought-out and Germans often compensate for their high uncertainty through relying on
expertise (Hofstede-Insights 201). Due to these differences between Sweden and Germany, the issue with X-Browser could most likely be affected by the cultural differences. Sweden is according to Hofstede-Insights (2018) an innovative society that wants to try out new ideas in a flexible way, unlike Germany who wants to have the full details and have an overview over the project if it would go through. In this case, the Swedish partner company wants to return to only using SAP as they did before X-Browser was implemented but according to the German culture, they should present a well-formed plan for why, and how, this would provide benefits for the company. It could be seen as an easy project to simply stop using the system but according to the German rate of uncertainty avoidance, there should be arguments and motivation that clearly define the need to phase out the system.

Latin-American countries have a high rate of uncertainty avoidance and they have a strong preference for order, clarity, and security and due to this, they are less open to change and innovation (Dietetics in Nicaragua n.d). Compared to Nicaragua, the United States have a low score on uncertainty avoidance and they have a high rate of acceptance to new ideas, innovative products and a will to try something new or different with for example technology, business or practices. The Americans do not require many rules and do not express themselves as emotionally as other cultures with a higher uncertainty avoidance (Hofstede-Insights 2018). The difference between Nicaragua and the United States due to the uncertainty avoidance is also one cultural factor that can make an impact on the hierarchical gap in the Nicaraguan partner company. The American management is most likely acceptable for new ideas and also as a result of the communication problem that created the need for the system. Although the users did not receive any education while starting to use the system, one user learned to use the system through Youtube and one got a ten-minute vocal introduction from the manager when the system was implemented. The system is easy to use, have a simple interface with a simple management, but the system is not used to the fullest. After discussing with the support personnel for Monday it was clear that the system could be used to other tasks like for example connecting costs in a specific order that is a challenge for the Nicaraguan partner company. The system has been implemented rapidly and is fulfilling the purpose to solve the problem it was meant to solve but there is more capacity in the system that should be analyzed to raise the efficiency in the company.

5 Discussion

5.1 Result discussion

5.1.1 National Culture
The analysis of the results through Hofstede’s dimensions of national culture brought up obstacles, challenges, and problems that could be an effect from a cross-cultural business. In chapter 4.2 in this report, the result is analyzed with Hofstede’s dimensions of national culture and explains cultural characteristics for Sweden, Germany, Nicaragua, and the
United States. Sweden and Germany are working together and also affect each other, the Nicaraguan partner company has a Nicaraguan and American culture within the business which affects the business itself.

5.1.1.1 Sweden
The Swedish partner company has an issue with the system X-Browser that they, according to them, are forced to use even if they are the only subsidiary in the large concern that still uses the system. Support is not available through the concern and there are no possibilities to develop the system due to that the system is developed specifically for the concern and the operation and maintenance of the system has been conducted internally. All this lean towards the belief that the Swedish partner company could phase out the system but according to them they are forced to use the system and that the rate of use is measured and controlled. At the same time as the Swedish partner company mention that they have this requirement of use, they have the decision on their table and they just have to motivate their decision to phase out the system. The differences from Hofstede’s dimensions of national culture regarding Masculinity/Femininity where Sweden is known for long discussion until they reach a consensus (Hofstede-Insights 2018) could be a reason that they stand still in the decision regarding the system when managers in Germany are expected to be decisive and assertive (Hofstede-Insights 2018). There are many characteristics for different countries when it comes to national culture and by analyzing the result in this study, the knowledge and possibility to work with cultural differences could be an improving aspect within this large concern that works in different nations and cultures. This result also answers to Aggouram’s (2009) theory that there are difficulties to implement an information system (IS) in subsidiaries due to the cultural differences.

The importance and benefits of having knowledge about cultural differences go, in this situation, both ways and if the knowledge about cultural differences is observed and noticed, this knowledge can be crucial for an IS success and utilization. Furneaux (2011) argue that technology can be both a facility and an obstacle for cultural driven behavior when it comes to communication which also could be the situation for Sweden and Germany due to the named issue. Culture is exerted by people who are affected by values that affect behavior (Hofstede 1980) and due to that it mostly is people who use the IS it is easy to assume that the culture plays a major role. Due to the results of this study, it is beneficial to acknowledge cultural aspects to work with both similarities and opposites to provide a business advantage and for a higher grade of unity in a concern.

5.1.1.2 Nicaragua
In the Nicaraguan partner company, a problem has been identified that the system of use, Monday, is not used by those who can provide the most benefits from the system. This is an inefficient due to that there is one employee that is responsible for updating statuses for the, around 2000 orders in production. There is a belief that the employees in the operative level of the company do not have enough education to be able to handle the system and that some of them do not have the capability to read or write. Although, the system has a
simple interface and what they would do is only to change color in the order to update the status. Today they are working with physical orders on paper which means that they do have the capability to interpret the orders. This situation is affected by the cultural aspects that creates a gap in the interaction between management and the operational level that could improve the efficiency. There are difficulties for the operational level to come up with ideas to improve the business and if they have ideas for improvement, it most likely stays in the groups at the operational level. Nicaraguans are seen as loyal workers (Dietetics in Nicaragua n.d) but most likely the hierarchy and cultural differences creates the gap. In this company, the cultural differences should be acknowledged to improve the business in all stages and to go forward together and the same way as Sweden and Germany use the similarities and opposites between the cultural characteristics to work as a united team.

The system of use, Monday, can also be used for other tasks than it does today. The Nicaraguan partner company has a problem to register material costs and match it to the correct order, for the major materials as wood etcetera they have the possibility to calculate the costs but the problem lays in the other materials as screws and nails. According to Monday’s support, there are ways to add costs to the order but most likely, this discussion has not been made before which means that there could be more ways to use the system than they do today. The system is used for the improved communication it was meant to solve but it seems that the system has more capabilities that can improve the business’ efficiency. This situation does not answer to the American characteristics of uncertainty avoidance, according to Hofstede-Insights (2018), Americans are innovative and are willing to try new things as technology or business practices and the question is, do these innovative characteristics include the aim to do more with what they already have? The combination of the Nicaraguan and the American characteristics of national culture would most likely provide greater innovation and efficiency that are moved forward together with the loyal workforce there is today.

5.1.2 Task-Technology Fit

The fit between the technology, the users, and the user tasks is of importance to analyze adaption and behavior within IS in a specific context (D’Ambra, Wilson & Akter 2013). Performance is achieved when the information system is well adjusted to the tasks that need to be performed (Furneaux 2012). The main focus with the theory is the individual impact for improved effectiveness and higher quality and the fit between technology and tasks has the purpose to raise usage and performance (D’Ambra, Wilson & Akter 2013). To discuss the connection between Task-Technology Fit and the impact of national culture, the result is reflected in a wider view than just one individual’s task. For the situations in both the Swedish and Nicaraguan partner company, the systems of use do not provide a fit to the tasks that need to be accomplished. In the Swedish partner company, the system is functioning as a tool and have the functions that they need to perform some of their daily tasks but the lower quality of the system result in a low grade of fit due to the capability to perform the tasks. The cultural impact should be acknowledged already before the implementation of the system if the Germans were aware of the cultural
differences there are and the Swedish partner company could use the knowledge about the differences due to how the situation is handled and how they should approach the concern to be able to phase out the system. In this problem situation, the cultural aspects play a major role in the implementation of the system that should be applied in both the design and execution of the implementation. It is likely due to the difficulties according to the subsidiaries different cultures that the implementation of the system was more or less successful in the different countries.

Due to the situation in the Nicaraguan partner company, there is a low fit between the tasks and the technology. The system is used for order information and communication but the ones that use the system today do only use the system around five percent and for the rest 95 percent they use other systems. Although, there is one employee who is responsible for the update of the order statuses. For this user, this is just one of many daily tasks and most likely there are difficulties to keep track of around 2000 orders. The most beneficial way of using this system would be to spread it to the rest of the operational level. Not everyone has the possibility to have a computer at their station or have a smartphone but the supervisors, or one responsible in each area should be responsible for updating the orders executed in that station. This would lead to that the information would be more up-to-date, it would be easier for management to get an overview for how long time each order takes in one station and the one who is responsible for this today could focus on the other analytical tasks and also work more with improvement projects, where they do not have any specifically responsible today. This would most likely lift the efficiency within the company, the right employees will be provided with the right system for their tasks and the up to date information would provide more reliable delivery information to the customers. This problem is seen as an effect of the cross-cultural company with two totally different cultures and where the interaction between them does not work. This could be seen as a personal issue, but national culture affects values that affect individuals and also their behavior towards the system.

5.1.3 Previous research

The previous research about cultural impact on information system (IS) success claims that national culture does have an impact on how an IS is implemented and used. Mardiana (2014) claims that the choice and implementation of an IS needs to be accurate for the specific business and that regular errors with IS project development are due to cultural differences and the culture is, therefore, important due to the impact it makes on IS implementation. Due to this research, this theory is confirmed due to that the German concern failed to implement the IS successfully in the subsidiaries, specifically in Sweden. This confirms the importance of cultural knowledge, or at least cultural adjustment of the IS to provide a fit between the system and the business. Furthermore, Kovadid (2005) argue about the importance of the national culture aspect due to the variation of adaption of technology that differs between countries which can be seen in the Nicaraguan partner company. Again, the adaption is not seen on the personal level, it is seen from the business level as a whole and for the Nicaraguan partner company, the system is not implemented.
to the fullest due to that it is not used by the whole company that could have advantage of it, which could be an effect from the way the system was implemented and introduced. Aggouram (2009) argue that information technology (IT) is a problem for multinational organizations due to the variation of the meaning of efficiency and information in different cultures. This means that the adaption, performance, and use of an IS is affected by culture but it is also discussed that the culture often is ignored during the implementation of new technology. This theory could be confirmed through this study according to the German way of implementing the system to the subsidiaries and in Sweden. The system was not properly made for the Swedish way of work which results in that they had to keep on working with their ERP-system SAP. In the same way, the Nicaraguan partner company implemented their system rapidly to employees in the management area where it is used for what they can use it for. Although it is not properly implemented due to that the system is not implemented in the whole company and in the areas where they could have more use of the system. Following, Brown (1999) discuss the globalization and the impact of technology within globalization. According to Brown (1999), technology makes it easier for culture to be transferred which is beneficial for globalization due to the need to understand the culture, where one part of the globalization process is to develop a culture that can transcend different backgrounds. For both partner companies in Sweden and Nicaragua, there could be beneficial to create a united culture for the concern where the Swedish company is a part of and for the Nicaraguan company itself. With a united culture for the German concern, the upcoming implementations would run more smoothly and the implemented information systems, or technology, would provide a better fit for the tasks. If the Nicaraguan partner company created a united culture it would also be easier to develop the company and provide a growth within the business and the production that they provide today.

5.1.4 Managerial implication

The increased use of information technology (IT) and information systems (IS) also causing a risk for businesses to build new systems upon existing systems to fulfill different needs. There are challenges with implementing an IS and with that also to achieve IS utilization. The implementation of IS in subsidiaries is an even comprehensive challenge which also affects the international market and with that, culture provides several benefits according to IS implementation in cross-cultural environments (Mardiana 2014). The result from this study provides knowledge towards mainly multinational businesses who aim to implement or evaluate the utilization of an IS. Although the cultural knowledge can provide the businesses with more benefits than just evaluation and implementation of an IS, it could most likely provide benefits according to communication, business development, information management etcetera. For multinational businesses, the cultural knowledge should be of importance due to that the headquarters will not be able to manage all the subsidiaries in the same way as they manage the headquarters. The cultural impact is huge within an organization, both national culture, and organizational culture and it needs to be acknowledged due to the involvement of people who are affected by values that affect their behavior. It could also
be a competitiveness for the international companies to have a well-functioning cultural awareness to make the business more unified and specified to the specific countries and markets where they are work.

The cultural impact is of importance, but it does not confirm that it is true for one specific company due to the variations of organizational culture. Although, the knowledge about national culture could lower the risk to fail with an implementation or give an explanation for a certain behavior. Within the information logistics program, there is a lack of international perspectives that need to be raised. There is some education due to organizational culture but the globalization requires the rise of international awareness. The information logistics program includes education about for example implementation, evaluation, system development, business development and supply chain management and these areas could receive benefits from an international perspective. It is not only for the students who aim to work internationally, but most of the companies today have some contact or interaction with other countries and cultures and for this, it is not possible to manage all the tasks with the perspective from only one culture.

5.2 Methodology reflection
In this study, a deductive approach was chosen and expectations were created before the research. According to Jacobsen (2011), there is a risk with the deductive approach due to the created expectations which often leads to that the researcher often searches for relevant information only that supports the expectations. There were expectations before the conducted research that the culture would have an impact on the information system utilization. Although, there were no expectations for how the culture would affect the utilization, therefore, the research was conducted with an open mind to be able to find as many affecting factors as possible.

The qualitative research is well suited when the researcher wants to understand what individuals do and why they do it and this method often includes a few respondents (Jacobsen 2011). Due to this study, there would be necessary to conduct more interviews to get a wider perspective of the problem situation. In the Swedish partner company, it would be interesting to research the management perspective of the problem and in the best scenario, also the German perspective. For the Nicaraguan partner company, it was only management that was interviewed due to that they are the ones using the system, but according to the culture, it would be beneficial to also study how the employees on the operational level perceive the system and how they could gain benefits for using the system. Another benefit of the qualitative approach is that the research can be flexible and changed during the research (Jacobsen 2011) which was useful for this investigation and changes that had to be made.

The observations that were made in this research at the Nicaraguan partner company should have been more and also more structured. The observations that were conducted
was made during observations of the company’s work process and did not get any detailed information of every step the employees take at work, after the interviews, it was although the information gained from the observations that made the interpreting clearer. If the observations were more, more detailed and structured, the observations most likely would provide more information to this study that could be necessary.

According to validity, the internal validity is considered as trustful due to that the respondents were promised anonymity and that the respondents were informed that the information will be used to improve the business. Although, this does not mean that the researcher assumes that all of the information is correct. Due to the choice of respondents, the research only studies one part of the business, the management part that uses the system. Due to that, the information is gained from the chosen respondents, there could be other opinions from other parts of the business. This also lowers the external validity together with the fact that it is only one studied company. Due to that, it is only one company studied in each country, it is impossible to confirm the external validity. Most likely, it does not look the same in other companies and most likely, the companies are affected and influenced by the cultures in different ways. The main benefit that would provide more valid information for this study would be to study more companies in both Sweden and Nicaragua and also study the whole company, not only one area.

The conducted interviews could be formed in another way. The ideal would be to conduct the interviews face to face but due to the language and distance challenges, they were conducted through e-mail. This lead to misunderstanding about the questions, so these interviews would need to be explained and conducted more like a conversation with the possibility to ask following and complementing questions, it would also enable explanation of the subject itself.

The accommodated selection of companies could also provide a defective view of the reality due to that there is only one company in each country that are studied. During the research, there was a situation in Nicaragua that limited the study. In the middle of April, there were violent demonstrations mainly in the capital that resulted in many closed businesses, including the Nicaraguan partner company. The researcher was also recommended to leave the place at the end of April which limited the possibility to follow up information in person and conduct completing observations.

The combination of the two theories Task-Technology Fit (TTF) and Hofstede’s dimensions of National culture provided a well-suited overview of the subject. The empirical data was collected with the use of TTF that defined some specific problems that the companies had according to the fit of technology towards their tasks. Hofstede’s dimensions were further used to analyze the result and interpreted to analyze if the cultural dimensions could have an impact on the specific problems. For this study, this was a relevant method that enabled the research to study what it was meant to study, the cultural impact of information system utilization.
6 Conclusion

Due to the globalization and increasing of multinational organizations, the previous research argues that culture is one affecting factor for if an information system (IS) is utilized and successful or not. For this research, a Swedish company that is a part of a German concern and a Nicaraguan company managed by Americans was studied through observations and interviews. This provided the possibility to reflect on the impact one country’s culture can make on a company in another country. In these cases, the cultural factors from both USA and Germany have made an impact on the current use of systems in the Swedish and Nicaraguan partner company.

The study collected empirical data according to the theory Task-Technology Fit (TTF) and how and why the systems are not used to the fullest. The empirical data, formed with the TTF theory was further analyzed with Hofstede’s dimensions of national culture to interpret the discussed problems within the Swedish and Nicaraguan partner companies. This interpretation of the empirical data through Hofstede’s dimensions viewed where, how, and in some ways why the American and German cultures penetrate the utilization of the systems in the Swedish and Nicaraguan partner companies.

The cultural factors who made an impact on their IS utilization were decision-making, values, hierarchy, integration and the expectations of employees and managers which were all viewed in the analysis of the result. A separate dimension for culture in IS utilization theories would contribute to a raise of knowledge about the differences between countries with different cultures and would most likely contribute to a more detailed evaluation of information systems due to the impacts that the cultural factors could have on IS utilization. With a focus on the cultural impact, the utilization of a system (high or low) could be interpreted and understood with the help of cultural characteristics.

In the Swedish partner company, the reason why the company still use the system against their will could be due to the German culture characteristics of communication and decision making where they, due to Hofstede’s dimension expect employees to take control and make their own decision. These cultural characteristics collide with the Swedish culture where they, due to Hofstede’s dimensions expect an answer and a decision from the decision makers higher in the decision-making hierarchy. In the Nicaraguan partner company, the system is only used by users in the strategic level of the company due to a spoken belief that the workers in the factory do not have the knowledge to read and handle technology. This could be due to the lack of communication between the factory workers and the management/owner which is a result of the characteristics from the two countries, Nicaragua and USA. Nicaraguans have a high score of power distance and with that accept hierarchical cleavages which result in a loss of communication between the higher and the lower level of the company. USA does not have an as high score as Nicaragua on the power distance but still to the grade that the cleavages are accepted which does not improve the communication. In fact, the factory
workers work with physical orders on paper today – which somehow shows that they have the capability to at least interpret their work.

To have been able to be in the studied country, Nicaragua, has contributed with a strength to this study due to the overall view over the national culture as a whole. Unfortunately, there have been limitations according to the decision to only study one company in each country which only provided the perspective of one company’s adaption of the national culture.

6.1 Suggestion for continuing research

Suggestion for continuing research is to conduct a more comprehensive study that includes more companies in more countries with separate cultures. A benefit is to study companies that, in some way, is a part of a multinational organization. Even if the companies do have a successful and utilized system, the culture can be studied and the factors identified of which ones who contribute to the utilization. Due to Hofstede’s theory, a few countries are missing, for example Nicaragua, therefore there is also a suggestion to expand this theory to cover all the countries and all the cultures. It would also be beneficial to add factors that are characteristics for the businesses within the different countries and what a company should embrace while expanding the business to other countries. With more knowledge about the different countries cultures, it would be beneficial to conduct the continuing research in form of observations due to the personal impact that is given through interviews. Most likely, it is hard for an individual to answer questions about how the culture takes place in the company, this is more seen as “silent knowledge” that is noticed more clearly through observations.
References


Attachments

Attachment 1: Interview questions

1. Please describe your daily tasks that you perform at work.
2. Which of these tasks are performed with the help of the used system (xx) and how?
3. Do you need any other system or resources to perform your tasks that you cannot accomplish with the help of system (xx)?
4. What information do you need to be able to accomplish the tasks that you perform in system (xx)?
5. Does system (xx) provide this information or from where do you get the information?
6. Is there any specific information that you miss in system (xx) that would make it easier for you to perform your tasks?
7. Can every information that you use in your daily work be added in system (xx)? Please explain if either yes or no.
8. How would you describe the simplicity to perform your daily tasks in system (xx)?
9. Do you have access to system (xx) every time you need it? Please explain.
10. How would you describe the connection between your daily work and system (xx)? (How often it is used, how helpful it is, etc.)
11. How often do you need to obtain support while using system (xx)?
12. Did you get any education before you implemented system (xx)?
13. What do you think about system (xx) (overall)?
14. Which advantages does system (xx) provide according to your daily work?
15. What difference is there between the implementation and use of system (xx) according to the Nicaraguan/Swedish and the American/German office?