Effectiveness of an ERP Vendor’s Customer Support E-system

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Abstract

In today's business climate many organizations are implementing ERP systems to connect all their processes into one system thereby hoping to benefit off the resulting efficiencies. ERP Vendors are trying to best cater to the needs of their customers, and this extends into the post-implementation period where customers rely on the Vendor to resolve software and technical errors that inevitably occur. This study looks into a factor within this area from the ERP Vendor perspective. Customers have to communicate with their ERP Vendor in the post-implementation period to resolve problems, and this study focuses on how this could best happen. This study uses a single case study approach that is centered on an ERP Vendor's Customer support team. This Vendor has identified a requirement of getting a new and improved customer support e-system. This study will investigate for them, and other ERP Vendors in similar situations, what factors should influence this decision.

To find the influential factors for the ERP Vendor's requirement, the study looks into the available literature concerning ERP and IT support, and then surveys the customer support team for further data. Part of the survey is based on a pre-existing study regarding the measurement of customer system effectiveness. And then qualitative responses from the support team are also analyzed.

This study has brought to light many influential factors for ERP Vendors to take into consideration to have an effective customer support e-system. While all the factors can be taken into consideration in varying degrees, this study concludes that the most important center on and around providing Self Service Support (SSS). And then within the e-system, the Vendor must ensure an alignment to their and customer processes, while maintaining clear and logical access to quality information.
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1. Introduction

The research topic this thesis will investigate comes from an organization where I am currently employed. Due to protection of privacy, in this thesis I will call the organization “Company X.” Company X is an ERP (Enterprise Resource Planning) software vendor that sells and implements its software through all phases of deployment—from technical (server installation), to the application side (project cost linking to the financial back office).

1.1 Background Description

After Company X completes a customer implementation, the customer then receives support from Company X for system errors and problems related to all standard components via the “Customer Support Services” (CSS) team. They pay for this with a yearly subscription of a “support contract,” or on an hourly cost basis.

Company X is an international company with headquarters in Copenhagen, Denmark. The Support services team is located at headquarters with the software development teams, product and marketing managers, internal IT department, administrations teams, and the executive group. There are local offices that perform direct sales and consulting in London, Boston, Amsterdam, Stockholm, Oslo, Copenhagen, and partners in South Africa and various Eastern European countries. There are about 80 employees in Headquarters, and then on average 30 employees per local office.

Currently the CSS team consists of 10 employees that service over 700 customers using a “certified contact” system whereby only appointed users can contact CSS. All contact with a CSS member must go via a phone call or a direct email. In addition the CSS team provides services to support local offices and Partners during implementation phases.

Management is finding that the current case logging support e-system is not effective. They believe it could be due to the fact that it offers no information retrieval and access to customers. Also, if the customer base grows at the anticipated rate, and the number of support employees remains consistent, then the current system may not be efficient. Therefore upper management (Executive Group) has allocated funds in the budget for the CSS Manager, and the IT Manager to select a new customer support system.

The IT manager says that currently all the e-system vendors that have approached them claim to offer anything they require in a system. This makes it challenging for them as currently they have no collection of ideas or concrete ideas of what is required. Currently management is looking for “tangible” evidence regarding what factors could contribute to the effectiveness of a new support system. For the purpose of this thesis
the new system is called an “e-system” to satisfy the requirement that it will allow some degree of customer interaction.

1.2 Research Questions and Purpose of Study

As Company X's management agree that there is no simple way to identify the criteria for the new customer support e-system, they have approved that I investigate this real-world dilemma in a Master's thesis.

Therefore, the research question for this study is-

“What factors should influence an ERP Vendor when choosing a new customer support e-system that increases overall effectiveness for the Vendor’s support team without negatively impacting customer satisfaction?”

The purpose of this study is “two-fold.” I have decided to investigate this situation at Company X to create a foundation for the firm in designing its new e-system. Additionally, this study could be used as a blueprint for other ERP vendors looking to “renovate” their support systems by addressing and bringing to light the unique factors in ERP and how to create effective e-systems. The objective here is to extract information regarding what is needed to create an effective e-system that supports customer service for ERP Vendors.

1.3 Limitations

There are three main limitations to this study. The first limitation is the amount of time available for this Master’s thesis. There is a very limited time for data collection and therefore this may not capture all the relevant data in the entire customer support process. The next limitation is the inability to survey customers. Company X has not allotted for access and time to survey a sample of customers regarding the new e-system. And finally, as I am a member of the CSS team, there will be some difficulty removing myself completely from the situation and remaining totally objective.

The second limitation is further controlled in the research question. Company X is not looking for a study directly investigating the improvement of customer satisfaction. One main cause for this is how the support employees remain more static than customer contacts. Most likely also for other ERP Vendors, the “customer contacts”, who log cases for support, are often changing, and not necessarily the financial decision makers in an organization.
1.4 Target Groups

The target group in this study for the research is the ten CSS team members. I have chosen this target group as they most directly interact with the customers, and therefore I establish that they can provide the proper insight with the customer’s needs in mind. Of course this limits this study to the direct perspective of the Vendor's support team. Investigating the issue from this focal point will produce relevant results that will link to overall effectiveness factors with-in ERP customer support e-systems.
2. Literature Review

When researching the available literature regarding this research topic, I used two general angles to approach the investigation to result in finding the most relevant literature to answer my research question. The first being the ERP software angle, where I tried to discover any related research on ERP customer support. And then secondly, I used the angle of information access to customer software support e-systems. This second approach initially resulted in many findings from the “IT help desk” perspective. Further into my literature review I discovered there was very relevant research on the evaluation of the effectiveness of information systems providing customer advice. All the articles I present here have information I have brought forth that can be used in when analyzing my data theoretically in Chapter 5.

In this following section I begin by examining the ERP system and its characteristics, and then move on to the area of Maintenance & Support (M&S) services – an integral aspect within the ERP system. Then a comparison between ERP systems vs. traditional software support will be looked into. In the next main section I will present findings from IT helpdesk literature, and look into information access from information systems. Then in the last part of the literature review I will present the very relevant discovery of a study concerning the evaluation of customer information systems, and its resulting model.

2.1 ERP Literature

2.1.1 ERP Definition & Post-Implementation Research

In this first area of researching the topic, it is important to look into how the literature defines an ERP system. This came easily as I found that a majority of the current literature regarding ERP software is examining how the software itself assists customers. These studies are done from the customer perspective, and focus in on the implementation aspects of the ERP software, versus what happens post-implementation.

One recent article does a good job of defining what ERP systems are – “(ERP) systems are configurable information system (IS) packages that integrate several business functions” (Wu and Wang, 2006). They further explain that “ERP is a standard software package that provides integrated transaction processing and access to information that spans multiple organizational units and multiple business functions” (Wu and Wang, 2006). In their article the authors present a very good diagram (figure 1) showing how an ERP system can include all the different areas of an organization in one central database.
This enables an organization to take various reports integrating all the areas in direct consideration, verses going from one system to another. This is also defined well in another article: “And ERP eliminates the need for individual data stores, duplicate records, and coordination of disparate data systems with unique record formats.” (Powel and Barry, 2005). So, during an ERP implementation, an organization moves its information from its different areas into one system, on one central database.

While there are obvious cost benefits to a customer of using an ERP system, and the time consuming process of implementing such a system are very important, there is little research done regarding post-implementation issues (NG, Gable, Chan, 2002). A major shortcoming of all the current literature I did find that looked into post-implementation ERP Support is that none is from the perspective of the ERP vendor, and all was directly from the customer perspective.

In the following section I will present what relevant information I did find regarding post-implementation support from the customer perspective. Post-implementation is the time-frame after a customer has finished setting up the ERP system, and thus using and relying on it for its day-to-day tasks.

2.1.2 Maintenance & Support is Key Element

A lot of the current research argues the importance of post-implementation for a customer from its vendor. The following quote explains this very clearly: “Maintenance and support (M&S) services, as an intrinsic part of an ERP system, can improve its quality and extend its life span. High quality M&S can result in the system having a profound and lasting impact on adopters’ competitive advantage” (Swanson, 2001). This point is brought further in an article entitled “Managing the full ERP life-cycle:
Considerations of maintenance and support requirements and IT governance practice as integral elements of the formula for successful ERP adoption” (Law, Chen, Wu, 2009). This study explored and identified the critical success factors of ERP adoption, and shows that M&S must be included as a key element from the outset and throughout the system lifecycle.

This study groups the stages of ERP into the following four phases—adaptation, acceptance, routinization, and infusion, and then tries to identify CSF’s relevance to M&S that happen across these phases. It then uses a single case study of a company going through and ERP implementation, and shows through the first failed attempt, and second successful attempt, and then how the “post” events were important to the cause of the first failure. The article concludes that the post-implementation support directly from an ERP vendor is so important that it is not a good idea to implement any non-standard customizations (that wouldn’t be supported by the ERP vendor). The article argues that it is best that customers align with their ERP vendors support services as much as possible, even before post-implementation.

A shortcoming of this article is it only draws conclusions from one customer’s situation. However, the article brings to light the importance of the customer relationship with the ERP vendor’s support services, showing a need for a good connection throughout all phases. The article doesn’t explain the details of this alignment and connection; however it provides a basis for this need. The article concludes with, – “This study has shown that M&S are important to the ERP lifecycle, and so must be handled properly in order for investment in ERP to yield benefits to the organization” (Law, Chen, Wu, 2009). The conclusions drawn from this article form a good springboard into my study of looking into an ERP Vendor’s e-system to provide a good relationship with the customer. The next section looks into why this support relationship should be different with ERP compared to other software.

2.1.3 ERP Support vs. Traditional Software Support

It is important to understand when answering my research question, why support for ERP software is different than standard software support.

One current article entitled “Characteristics of ERP software maintenance: a multiple case study” uses a multiple case study to examine the differences between ERP support verses supporting the traditional software packages. The authors state in this study, “Since ERP is continually evolving and is a fairly new phenomenon, little research has been done to study maintenance of these systems” (Nah, Faja, Cata, 2001). This study finds that most of the post implementation maintenance is actually the same. However, they add a category “Since coordination with external parties and creation of OSS notes are largely external in nature, they were grouped under a new category named ‘communication, coordination, and knowledge exchange with external parties’” (Nah, Faja, Cata, 2001). The further definition of this new category shows from the customer angle what tasks the customer needs to do with the ERP vendor. The article explains - “Online query or reporting of problems to the vendor, tracking the vendor’s progress
towards resolution of problems reported” (Nah, Faja, Cata, 2001). The article doesn’t give examples of how the Vendor offers this. But it is relevant to this study to know that these services have been identified to be offered.

Another short-coming of this study is it doesn’t delve into how the customer communicates with the vendor when they require support traditionally. The next section looks into relevant literature regarding running the IT helpdesk and the communication of information to IT help information systems.

2.2 IT Helpdesk and Information Access

I looked into the abundance of literature out there regarding IT Helpdesk support as information from this similar area can assist in answering my research question. Although not an IT Helpdesk, there are a lot of similarities between the way Company X’s CSS team operates, and how an IT Helpdesk operates. However, the main difference being that an IT Helpdesk generally assists a user with a variety of hardware and software problems, and Company X’s CSS team supports customers with a singular ERP system. Within the IT literature I found the subject of factors influencing the access of information to customers via e-systems most important to my study. And then the most closely linked here is the literature for this aspect within the general IT help desk category. Just because Company X is providing support to a company, rather than an individual customer, it doesn’t mean the basic arguments/suggestions put forth by the help-desk literature are irrelevant or that Company X’s method in providing its customers support needs to be drastically different. The same arguments for the traditional IT support should still hold true to a large extent.

In the next section I will present a factor from this literature regarding user’s ability to get support directly from an information system (Self-Service-Support), versus via a person.

2.2.1 Self-Service-Support from IT helpdesks

Company X’s management already pointed out that the current e-system offers customers no access, and this could be a factor influencing the new system. In a recent book entitled “Introduction to Help Desk Concepts and Skills” (Sanderson, 2004) there is an entire chapter focusing on “Web-Based Support”. This chapter explains the concept of Self-Service Support (SSS) and the characteristics of an effective support site. It goes through the advantages, benefits, and challenges. The book outlines web-based tools to assist this SSS. It doesn’t go deeply into the disadvantages of SSS, and any kind of insight from the customer perspective. The only disadvantage that is discussed is related to a problem of duplication that could be created, and the need for a good marketing strategy to ensure the correct use of the system. What is outlined in this book shows a good frame-work for an e-system offering self-service support. It is a quite general textbook and doesn’t offer any real-world case studies in this area.
This concept of SSS is also looked into by IBM in their “Redbooks” manuals. IBM has come out with many of these manuals leading to a “model” of technical means of how things are done in the technical world—example, the very standard, sales, then implementation, then go-live, then support, and further selling supplement products to enhance the software capabilities. I find it important to look into and present this model as Company X generally follows this model before support. In IBM’s book’s, “self-sufficiency” is preached in the implementation phase. (IBM Redbooks, 2004). These articles don’t go into details regarding SSS and post-deployment support. They just explain how in their model customers can pay for different levels of support involving contact with people representatives, and contracts involving costs around upgrading to fix bugs. Customers can pay and have “Premium Support, which provides you with an on-call support representative to assist with your specific support needs” (IBM Redbooks, 2004). There is no discussion of an e-system here to connect with the Vendor. This literature leads to a factor of Company X’s future e-system with self-service support as an influential factor. And, for example, shows the possibility of allowing Company X to applying extra costs to customers to directly contact an on-call support representative. The next section will look into the disadvantages of SSS.

2.2.2 Disadvantages of SSS

After reading the literature regarding SSS, for the purpose of this study one can see it almost as a “tool” for aiding a support team. Here I bring up a related relevant article that does this and sees disadvantages to SSS. This recent article looks into “knowledge workers” in a technical support call center, adapting “knowledge tools” that are supposed to aid them and create efficiency by reducing interaction time with customers. The article is appropriately entitled- “It’s Easier to Ask Someone I know”: Call Center Technicians’ Adoption of Knowledge Management Tools” (Downing, 2004). Through a case study in technical support call centers, it found that “knowledge tools” created for automation in certain procedures such as case creation and case solving were not successful. The reasons behind this are quite relevant for this study as they show the possible negative outcomes of SSS, and what factors caused this. In this study the User’s of the automated “Tools” were front-line employees. In Company X this could be either the CSS employees, or the customers using the tools in the new E-system. A shortcoming of the article is the author only gave a general explanation of the automations, such as incident creation and answers to frequently asked questions. He didn’t explicitly explain or show what the call centers were doing technical support for, and questions asked. The article does bring out an interesting point regarding an conclusion of why the new tool was not successful. The author suggests that as the “beta” version (first release) of the tool was not well taken as it had many problems, the negative attitude continued through the real release of the tool, even though the errors had been corrected and improvements made.

2.2.3 E-systems and Information Retrieval

Taking one further look into SSS related literature that is relevant to my research question I came across the area of information retrieval from e-systems. I found an
article related software agents and information retrieval via e-system’s that points out the important factor of “the make-up” of information systems and the information retrieval from an e-system (Knowles, 1999). The article outlines the benefits of an e-system versus a non-electronic version of a similar system. This is a factor to consider in Company X’s new e-system. The author’s conclusions suggest that the aspect of finding a standard way of organizing or filing information via the “intelligent agents” could be relevant to this study. This article brings about the importance of how standard information make-up is required to be thought out when developing an e-system. This article goes into a lot of deep technical background of software agents that looks into the software development of the e-system, and not the customer usage aspects of an e-system. This appears to be a negative side of the article if managers who are non-technical are trying to use the article for assistance in putting together an effective e-system.

When I further looked into literature regarding effective E-systems with customer interaction, I came upon a very relevant article I will talk about in the next section. So far all the above articles I have presented offer pieces of evidence that will assist in answering my research question. Next, I will present a study that provides a more wholesome approach to answering my research questions.

2.3 Evaluation of E-systems- A Relevant Model

I have chosen an article here to present in my literature review that has provided a way of structuring all the possible relevant factors my research question is asking about. In his paper entitled “Justifying information system value: Development of a method for measuring customer advisory system effectiveness”, the author, Wolfgang Messner brings up many points I can closely relate to Company X’s situation. More specifically, its simple structure provides an easy way for Company X to categorize possible factors that can make the new e-system effective. So, related to my research question, a “customer support e-system” easily substitutes what Messner calls a “customer advisory system”, as they could be coined as similar instruments. They are both e-systems that provide customers information with Vendor employees inputting information into it. If Company X’s current e-system can be evaluated appropriately creating valid conclusions, it can lead to the anticipated results of aspects required in an improved customer support e-system for Company X. Therefore, as he touches upon points specific to company X, I will continue to use Messner’s findings in the rest of this study. And I will further explain how I have implemented his model into Company X’s situation.

In the following section I will explain how Messner came to develop his model, and the details about it.
2.3.1 Model for assessing a Customer E-system

Messner begins his study by reviewing relevant past models created and used to evaluate the success of information systems. He concludes that there has been no complete “stringent model for measuring the usefulness of information systems” (Messner, 2007). One short-coming of this is Messner doesn’t really explain if there were any models he left out and why. He does go through 6 previous models extracting what he argues to be the most important components and dimensions of them.

Messner then uses this information from all the past models he reviewed, and streamlines them into one current model. (see figure 2). This model separates 5 related dimensions. In Messner’s study, he explains, “Developing and applying a systematic model for assessing information systems is an essential requirement for supporting the feedback loop. Such a model will be multi-dimensional” (Messner, 2007). This state of the art model developed by Messner contains the dimensions that offer the structure to assist my study. And due to the time-constraints of my study it offers a perfect pre-designed way to get data to answer my research question. Messner explains the model is applicable to all industries, but in his paper, he gives a special focus to advisory systems in the banking industry. He does not justify why he does this, however the chosen focus appears to be closely related to software support customer e-systems.

The five area’s Messner identifies with his model are “Market alignment, system basis, FLE qualification and enablement, FLE approval and pertinence, and business output” (Messner, 2007). “FLE” is the abbreviation for “Front-line employee”. Starting under
“Market alignment”, Messner groups the studying of the FLE’s opinion on the general management and market issues. In “System basis” he examines the quality of the information system related to business processes. Within “FLE qualification and enablement”, Messner looks at the FLE’s level of training in using the information system, and their qualification level. Messner further examines the FLE’s satisfaction with the information system under “FLE approval and pertinence”. And then finally in “Business output”, Messner looks into the level of customer experience and benefits achieved from the information system.

After defining the model, Messner tests his model through creating related survey questions and surveying the FLE's in banking companies using customer advisory systems to directly advise customers. While one may argue that it is negative that his model doesn't survey the customers directly, his approach perfectly fits the data collection in my study where I only have access to the front line employees using the system. So Company X's CSS team members are the FLE's. Messner further takes the 5 areas and creates a survey question for each sub-indicator. The questions are designed to be answered along a 1-6 scale from “completely disagree, to fully agree” (Messner, 2007).

Messner’s article is also lacking what the conclusions in the example are actually used for and what are the conclusions made. He explains simply that his paper “presented a model for measuring the efficiency of a customer advisory system from a front-line employee’s perspective. It captures the multi-dimensional and interdependent nature of information system success” (Messner, 2007). By implementing his model to help answer my research question, I can take the an extra step into a real-world situation and use his model, and then have the ability to propose recommendations and conclusions related to an improved customer support e-system.

2.4 Summary of Literature Review

The literature review has first identified recent research related to ERP systems, which turns out to be customer oriented and points out that little research has been done regarding post implementation ERP support. It does bring forth in one example what is offered “on-line” by an ERP vendor for Maintenance and Support. And then further research into the related IT Helpdesk support category results in an investigation of “SSS” (Self Service Support), and the relevance of it to this study. Finally, in the end, the literature review presents an article by Wolfgang Messner that is directly related to e-systems and evaluating there effectiveness. The model presented appears to be a good fit to use in examining the research question.

Messner explains in his paper that “Information systems managers in companies are under increasing pressure to justify the value and contribution of customer advisory systems to the profitability of the organization. Measuring the usefulness of systems is critical to an understanding of this value contribution” (Messner, 2007). This explanation
is a quite useful place to begin with why the best way to start answering my research question is to evaluate Company X’s current e-system. In the next chapter I will explain how I have done this.
3. Methodology

In this Chapter I will explain the research method I have chosen to answer my research question, and why it works best for my research.

Considering my time restraints and limited access to gathering data, I have chosen to do a single exploratory case study with mixed methods incorporating Messner’s model. Firstly, I will collect primary data from Company X, using Messner’s model to gain clear evidence regarding issues with the current e-system, and then I will further gather qualitative data directly regarding the future e-system. The results will then be analyzed with points presented in my Literature Review. And finally, I will analyze the data within itself to extract any important findings to answer my research question. The method I am using also fits well to providing management with a clear way to follow how I come about with any tangible evidence in answering my research question.

In the next sections I will go through in more detail why the exploratory single case study approach using mixed methods fits well to my study, and details regarding the method. And then in the end the ethical issues around this research design will be discussed.

3.1 Exploratory Single Case Study Approach

I have chosen a case study strategy as I argue that it will allow me to answer my research questions and meet my objectives. As explained in the book Research Methods for Business Students, “An exploratory study is a valuable means of finding out ‘what is happening; to seek new insights; to ask questions and to assess phenomena in a new light’” (Robson, 2002:59). This thesis is to explore in greater detail what needs to be found out about when a Vendor set’s up an e-support system to assist customers in the ERP software business sector. This phenomenon in post-implementation ERP support from the Vendor’s perspective is a relatively new situation and has an angle the current literature does not look at. The exploratory case study also offers me the opportunity to be more focused instead of taking on a large scale research which my time limitations prohibit.

Company X’s “real-world” situation using this strategy is looked upon as appropriate in much of the case study literature. This is show in the following explanation in the book Case study research: Design and methods, - “In general, case studies are the preferred strategy... when the focus is on a contemporary phenomenon with some real-life context” (Robert, K, Yin, 2002, P.1). I argue that Company X is a unique or special case that is definitely providing an opportunity to analyze a situation that has not been considered yet. And further evidence that this strategy will work in providing results to my research question in outlined in the following quote - “The case study strategy also
has considerable ability to generate answers to the question ‘why?’ as well as the ‘what?’ and ‘how’ questions” (Saunders, Lewis, and Thornhill, pg 139). I point this out as my research question is asking “what?”.

Mainly due to time constraints only a single case can be looked at here. The book *Research Methods for Business Students*, explains that this will work for my study when saying - “A single case is often used where it represents a critical case or, alternatively and extreme or unique case” (Saunders, Lewis, and Thornhill, pg 140). The book also adds - “Inevitably, an important aspect of using a single case is defining the actual case. For many part-time students this is the organisation for which they work”(Saunders, Lewis, and Thornhill, pg 140). This agrees with how I have defined “the case” as the Company X’s Customer Support team, and during the study I will be working at Company X part-time.

One could argue that an Action Based research strategy could be a good choice for this study, because I can interact and use the e-system. However, again due to time limitations I would not be able to investigate the results of the new e-system in regards to the influential aspects identified. Action Based research requires a thorough before and after investigation. Since I have limited time, and management don’t want an extreme amount of interference with the Support Team’s daily work, I have further designed my methodology to adhere to this. In the next section I will explain how this is done using a mixed method design.

### 3.2 Mixed Method research design using Messner’s Survey

To most appropriately and effectively collect data to answer my research question, I have used a mixed method design implementing Messner’s model and resulting survey and then using an opened ended question. The results from Messner’s survey, using his scaling system of “1-6” produces quantitative output. And then to get the best, most unbiased data related to a new e-system, an open-ended question will be asked that produces qualitative output. The mixed method approach in my case calls for quantitative and qualitative results.

After looking into recent articles concerning mixed methods I came upon a useful article called - “A typology of mixed methods research designs” (Leech and Onwuegbuzie 2007). This article presents different types of mixed methods related to the levels of mixing quantitative and qualitative mixed method designs by explaining 3 dimensions- “(a) level of mixing (partially mixed verses fully mixed), (b) time orientation (concurrent verses sequential), (c) emphasis of approaches (equal status verses dominant status)” (Leech and Onwuegbuzie 2007).

Based on an analysis of these dimensions I have picked to carry out the research with the authors call an "F2 model - Fully mixed concurrent dominant status design" (Leech and Onwuegbuzie 2007). The below quote from the paper explains the details of this-
“A fully mixed concurrent dominant status design involves conducting a study that mixes qualitative and quantitative research within one or more of, or across the aforementioned three components in a single research study. In this design, the quantitative and qualitative phases are mixed concurrently at one or more stages or across the stages… either the quantitative or the qualitative phase is given more weight.” (Leech and Onwuegbuzie 2007).

To summarize what this means for my study is that the qualitative data from the open-ended question will be given more weight in my analysis, than the quantitative results from Messner's survey. I use this approach because the qualitative response from the open-ended questions regarding the future system is the first priority of what management require, and can directly answer my research questions. These results should contain little pre-bias, as the respondent can answer freely without a pre-categorized set of questions. Also, when using Messner's model and related to survey, I have found that not all of Messner's 35 questions are necessary and relevant for my study to use in my survey. I have therefore shortened my survey to 22 questions, and left out the area called “FLE approval and pertinence”. This is because this area relates mainly to information systems that contain sales where customers have direct system access, which Company X's current system does not.

If I were not conducting this research, management explains that a lot of valuable time would be spent just gathering this open-ended input from the employees. Ideally they would like to consider everyone's input on what the new e-system should entail. However, they realize if this were brought up in a meeting or one-to-one in-depth interviewing, then long time-consuming discussions could prevail. The less weighted quantitative answers are still very valuable to this study. And analyzing them against the open-ended answers will also add to the research done by Messner and put his model to the test.

When gathering and analyzing the resulting data using the methods I have just described, there are certain ethics necessary to bring forward. The next section will go through this.

### 3.3 Research Design Ethics

For the purpose of this investigation I have taken on the new role as a “researcher” from my normal role as a member of Company X's support team. I admit that it will be challenging to remove myself entirely from the situation and play the new role. And it will be hard to remove myself from influencing the results of the situation. I am extremely conscious of the research situation and therefore keep in mind the Subject (what I am researching) with the Object (what is happening).
However, it can be looked at as an advantage that it will not be necessary to spend a lot of “valuable time” learning what goes on in the organization (Saunders, Lewis, and Thornhill, pg 144). Or will I have to do a lot of preliminary research to “gain a good understanding of your host organization” (Saunders, Lewis, and Thornhill, pg 28). Because I am looking into a situation that I am in, I must make the effort to try to be un-biased and think as more like an outsider when conducting the research. Concerning the awareness of my position and how it might affect the perspective, both positively and negatively I have chosen a data collection method where I will give little influence to the information retrieved by my colleagues. This is due to the use of Messner’s pre-fabricated survey constructed from his model. The greater challenge will be when analyzing the data and trying to remain un-biased. I also must promote to the team that the information they provide is anonymous so they feel free to express themselves.

3.4 Summary of Methodology

In summary, the method chosen here to effectively answer my research question is a single exploratory case study within Company X, using mixed methods incorporating Messner’s model for quantitative results, and gathering qualitative results with an open-ended question. Company X’s support team will be surveyed with a reduced version of Messner’s survey, and the opportunity to answer an open ended question. This has all been designed to reduce bias in the results and keep me in the position of an outsider. The next section will show how I did this and the results of my data collection.
4. Presentation of Data from Fieldwork

In this chapter, the actual survey questions and results will be presented. The 10 members of Company X's Support team were emailed the surveys and given one week to respond. They were asked to print out their responses and put them in an envelope placed in a discreet location. This was all done so the respondents would understand how anonymous this was, hopefully resulting in the most explicit answers possible.

4.1 Survey questions/answers based on Messner’s Model

Here I present the actual 22 survey questions asked based on Messner’s Model and from his example survey (Messner, 2007) - (see appendix for actual survey given to Company X). The respondents were asked to give a rating to the following statements with either a -

(1) Strongly Disagree,
(2) Disagree,
(3) Somewhat Disagree,
(4) Somewhat Agree,
(5) Agree,
(6) Strongly Agree.

4.1.1 Questions asked

Questions regarding the current Customer Support E-System:

1. In general, the system is "easy-to-use".
2. The system has no noteworthy down-times.
3. The system performance time is – in general- acceptable.
4. I can configure the system to meet my personal needs.
5. The system provides me with sufficient, correct and relevant information in all customer situations.
6. Critical information in the system is always up-to-date and consistent.
7. All displayed information in the system is easy to understand.
8. I can rely on the system to guide me in the service processes.
9. The system is integrated; I do not need to call different applications for one single customer problem.
10. I know how to use and leverage the system’s functionality to provide premier customer experience.
11. I am receiving sufficient training to confidently handle the system.
12. The system documentation is useful in guiding me through the system. It is complete and easy to understand.
13. I feel that the customer is happy with the output and information I extract from the system.
14. I feel that the current system helps me to increase customer satisfaction.

General questions regarding Company X's Support team:

15. Our procedures and guidelines are aligned with the needs of our customers.
16. The products and services we offer across all channels meet our customers' needs.
17. Our products and services are most competitive.
18. I know about our customer and market strategy.
19. Our procedures and guidelines help me with my daily business and to work proactively with my customers.
20. My management is committed to provide me with leading-edge tools and systems so that I can perform better.
21. My management knows about the issues I have with my tools and systems.
22. Information I have entered into the system is taken as a basis for management decisions.

4.1.2 Results of Survey

The below table shows the results to the survey questions into areas based on Messner's model. I have taken the rough average score for each question across all 10 respondents' answers. If a question was left blank then I rated it as a 3.5, putting it right in the middle of the 1-6 score. I have then taken an average for each question in each area, and also taken an average for each sub-theme in each area. For the purpose of this study, and due to the less weight I will place in the analysis of these results, I only show very basic calculations. The averages for each question can be found in Appendix B.
Table 4.1—Results from Survey

<table>
<thead>
<tr>
<th>Sub-themes</th>
<th>Market Alignment</th>
<th>System Basis</th>
<th>FLE Qualification and enablement</th>
<th>Business output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy fit Q-1-4</td>
<td>4.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Process Fit Q-15-19</td>
<td>4.225</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Commitment Q-20-21</td>
<td>4.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System Quality Q-1-4</td>
<td></td>
<td>3.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Quality Q-5-7</td>
<td></td>
<td>3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process Alignment Q-8-9</td>
<td></td>
<td>2.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLE Knowledge Q-10</td>
<td></td>
<td></td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Support Quality Q-11-12</td>
<td></td>
<td></td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>Customer Experience Q-13-14</td>
<td></td>
<td></td>
<td></td>
<td>4.05</td>
</tr>
<tr>
<td><strong>TOTAL AVERAGES</strong></td>
<td><strong>4.15</strong></td>
<td><strong>3.15</strong></td>
<td><strong>3.76</strong></td>
<td><strong>4.05</strong></td>
</tr>
</tbody>
</table>

4.2 Open-Ended Question and Answers-

The open ended question asked at the end of the survey was-

“Imagine a new or altered CSS Customer Support E-System: Please write your top requests for what you think should be added to the new system. Feel free to add additional pages if the below space is not enough.”

Below I have listed the results in 5 categories – Systems Integration, Customer Access, Aesthetics, Performance, Information availability. When compiling the results, I created...
these categories. They are based on where each response with the same theme fit together. Within each category the responses may not have the same angle to the theme. This will be analyzed in the next Chapter.

**Category 1: Systems Integration**

* Ability to mail directly from there – or better Outlook integration – would make it easier to update customer (contact) info

* Connected to other programs, Outlook for instance which would make it possible to drag and drop.

* Integrated with the other tools we use like for example the Microsoft products (Word, Outlook, PDF formats)

* No more Outlook! The support system must be able to handle mails and create cases automatically.

* All in one- one place for support, dial-in, Wiki/FAQ, Mail handling

* email integration

* Integrated CRM and support system

* The storing of dial-in information should be a single point, single updated location with the incentives for all in the organization to update if a change has been carried out. The knowledge is in the organization but it is embarrassing that we need to contact the customer for the same information some TIA-/ consultant is having but have not shared. Same goes for system changes – such as webdaemons (portals) e.i. the index file.

* Integrated phone system/support system

* Ability to upload documentation directly into system

* Ability to attach documents to cases and events

**Category 2: Customer Access**

* Customer login- customer can log in and check active cases

* FAQs available to customers

* The absolute top priority should be a functionality to make customers be able to log the cases themselves online. This could be a HUGE timesaver and quality improver – first of all because the online form should serve as a check list – so all necessary nifo was
gathered upon logging the case. But also because the logging of cases takes time. Maybe only five minutes, but CSS have 100 new cases in a week then 500 minutes will be saved.

* Customer ability to check status and log cases and update details and download contract info and rules

**Category 3: Aesthetics**

* Less obscure naming of fields, menus – should literally be foolproof and by their naming be clear in what direction you need to go.

Example: why is there Problem Manager, Account Manager and Information Manager on a job/case?

* Functionality not always clear- What text is a link? Which text isn’t? Can’t tell unless mouse-overed.

* Superior aesthetics shouldn’t be under-rated- needs less annoying little scrolling frames. Currently it is a bit of an “information salad” with no visual markers to identify regions of important information.

* “Less is more” philosophy on the whole system

* “Eye Candy”

**Category 4: Performance**

* Fast and stable – only in Chrome it performs reasonable. So many separate (HTML and Java) components (most of the time not used of relevant anyway) are loaded in one window that it drags down the performance and makes the windows not easy to understand within that 1/10 sec you normally should need.

* Fast and up to date

* Easy and fast to create new jobs/cases

* Performance and better usability.

* Speed should also be addressed

* Faster performance time, especially when opening cases and searching

**Category 5: Information Availability**

* Easy and fast to search for information
* Standardized process for creating subject or keywords to aid searching.

* Better searching functionality

* All relevant information one click away.

* Better follow-up and overview of cases.

* More difficult than necessary to get a total overview of all cases and their progress. No ability to filter things now.

* Warnings when on “billable time”.

4.3 Summary of Data Presentation Model for assessing a Customer

The data in this chapter shows details and ratings of areas and categories related to Company X’s e-system, and future e-system. Using pre-defined areas by Messner, the results show that area averages are all within 3 (Somewhat Disagree), and 4 (Somewhat Agree). The highest score was in the area of “Market Alignment”, and the lowest was in “System Basis”. As this quantitative data presented is only taken from 10 respondents I have not done a more thorough statistical analysis. Each respondent provides a heavy influence in this case study, and the averages show a need in all areas for improvement of the current e-system. And the methodology of this study calls for a more heavily investigation based on the qualitative results to aid Company X’s management. The open-ended question related to a future e-system resulted in 5 categories of answers. Within these categories there are diverse suggestions on each topic. “Systems Integration” and “Information Availability” resulted in the highest number of responses.
5. Analysis- Theoretically & Practically

Following my methodology, in this chapter I will analyze my findings in relationship to answering my research question. In the first section I will do an analysis of points from my literature review. And then in the second section there will be a more detailed analysis breaking down the data collected from my field work.

5.1 Analysis of theoretical findings

In my analysis of theoretical points, it is important to explain that none of the findings brought out in Chapter 3 (Literature Review) is exactly a “theoretical framework”. But the points brought out are relevant enough to analyze in relation to my research topic. They create conclusions from one angle that can benefit management in offering possibilities of aspects to influence Company X’s new e-system. And I argue that using Messner’s model from his published study could be considered a theory. Here, I will first look at all the points except for Messer's model. And then secondly I will analyze his model.

5.1.1 Initial Points from theoretical findings

The first point brought out in my literature review is how little research has been conducted related to post-implementation ERP vendor support. With this in mind, the conclusions I make through my analysis can greatly add to this under-explored area. This directly relates to the next point of how M&S (Maintenance and Support) is a “key element” and should be taken seriously by customers throughout their system lifecycle. This means that Company X, for example should cater to this need by somehow incorporating this into their new support e-system. One simple example of satisfying this “need” is by offering limited access of a support e-system during implementation phase. Giving a customer this pre-access to a support e-system, that offers a customer access, guarantees not only confidence going into post-implementation, it allows for a smooth transition. This also reduces the transition time involved in explaining how post-implementation support works (as a customer could view the details of their support contract), and the time involved in acquiring the necessary information, such as contact names and system connection details.

Also brought up regarding how important it is for the customers to align with their ERP vendor before post-implementation, is due to the evidence that ERP implementation success is higher with non-standard customizations. This shows that the trend for customers is to keep customizations to a minimum, and therefore rely on support from ERP vendors for the standard features they use. Access to a support e-system early on could aid a customer in understanding the rules of how a vendor can support standard features, however when it comes to customizations (for example, Company X’s local
offices often contract out developers to make customizations), then there is an understanding between the customer and vendor the rules behind what is supported.

The third point shows some important results of current research regarding ERP software maintenance. It brings out an additional category produced by ERP support, to traditional software support. When the authors explain this category, they actually use the important words - “Online query or reporting of problems to the vendor, tracking the vendor's progress towards resolution of problems reported” (Nah, Faja, Cata, 2001). This is important to my study as it shows what ERP vendors are offering. Currently Company X does not offer customers the option to do any on-line query, or reporting of their problems, and also to track the progress the problems they report. If Company X wants to remain competitive in their support services, then these definitely are aspects worth considering in the future e-system.

For Company X to carry out the improvements already suggested to its future e-system, the next point of “SSS” (Self-Service-Support) should be taken into consideration. Again, but from the angle of helpdesk IT support, this aspect of customer access to information holds quite strong. The advantages of SSS outweigh any disadvantages. If a customer has the web-access to investigate, report, and track problems, it results in mass efficiency. Using all the previous analysis stated, and the fact that IT helpdesk support isn't drastically different, this shows how important SSS could be to Company X's future e-system. And merely knowing the disadvantages of SSS, this can assist Company X in implementing it successfully. If Company X uses SSS in its future e-system then it looks like it will first of all be necessary for a good plan of initiating with customers. The IT helpdesk literature argues for good organization so no duplication occurs, and good communication of how to use the SSS correctly. Figure 5.1 has been created to show how ERP Support is important throughout the system lifecycle, and SSS ensures this.
Here I would like to skip over the next point to look again at disadvantages of SSS in the last finding brought up in my literature review. Downing's article also addresses these disadvantages of using tools similar to SSS in technical support. As it found that releasing a poor beta version of the tool resulted in a negative attitude towards using the final release, Company X should keep this in mind. If using SSS as a new factor in its new E-system, then it should properly market the new processes, and make sure there is no beta version released with many problems. The point skipped presented regarding literature by IBM can be seen as providing a method to off-sets some disadvantages of SSS. Company X should first consider that there will be customers who prefer to “Ask Someone I know” (part of the title of Downing's article). Keeping this in mind, and looking how Company X generally follows IBM's model, their new e-system may want to consider the factor of discriminating between levels of support. And then allowing certain premium customers easier phone support over SSS support. IBM's model promotes self support in the pre-implementation phase, so this set-up could further encourage SSS in the post-implementation phases by enforcing that main-stream customers have limited access to direct person support.

The last finding presented in my literature review brings up the aspect of information retrieval. If Company X uses SSS, then it must take information retrieval from the new e-system into consideration. If customers have the possibility of using SSS, then there must be some kind of standard way of organizing the information decided upon beforehand. So, the new e-system should efficiently store and show the required information. This point brings out how important it is for Company X to thoroughly think this through before moving over to a new e-system.

In conclusion, all the aspects that have been analyzed so far are centered around, or directly related to the factor of SSS. So in summary, if Company X's incorporates SSS in its new e-system, then it will start by assisting their customers to create a good understanding of their M&S relationship already in their implementation period. And then it can further comply with other ERP vendors, who already allow the SSS aspects of online problem querying, reporting, and tracking. If offering SSS in its future e-system, Company X must also keep in mind the proper promotion and training of the new system, being careful not to launch a bad beta version. Company X may encourage use of the SSS, by limiting direct phone contact of Support team members to premium customers. And lastly, Company X must thoroughly think through the organization of the information SSS will produce within the new e-system.

I will mention again, these conclusions are solely from the research initially pointed out in the literature review. In the next section I will analyze how Messner's model (that I am using as a “theoretical model”), brings up factors relevant to answering my research question.
5.1.2 Analysis of Messner’s Model

Messner’s model was chosen to be used to provide a theoretical framework to help structure and answer my research question. Here I will go into more detail regarding the 5 areas this model defines, and then within each area, analyze the different factors Messner brings up. It will be looked into how these factors could answer my research question. More specifically it will provide Company X with evidence related to what factors should influence their future customer support e-system.

The first area in Messner’s model is called “Market Alignment”, which he also refers to in his paper as “Business input”. In general, this area creates a much needed base of where Company X’s management should begin considering factors influencing its e-system. Messner breaks this area down into “Strategy fit, Business process fit, and Management commitment”. In bringing up “Strategy fit”, Messner exhibits the need for an organization to consider its own strategy in its e-system, especially if the customers have access to it. And that the support employees using the system with customers have knowledge on how it does so. This continuity should assist in leading to a non-decreasing level of customer satisfaction. This is also touched upon in the next factor of “Business process fit”. Here in the base area of the model, Messner explains there should be a good connection between support offerings and the customer needs regarding their ERP system. In general Company X’s ERP product is crucial to a customer’s day-to-day operations which are especially time-critical around their month-end invoicing for example. So this factor enforces a general base need for Company X to make sure it has somehow successfully established in its future e-system. Company X already does this by allowing customers to negotiate with the Support team what priority level should be set to their problem based on pre-defined priority definitions. To make all the mentioned factors happen, Messner’s next factor of “Management commitment” plays a big role. Basically self-explanatory, this factor shows how Company X’s management must know what requirements the support team members have to do their job effectively. Management must take these requirements seriously and be proactive in providing what is necessary.

“System basis” is the next area Messner describes in his model. In this area he begins with the factor of “Process alignment”, where he describes how the system should follow business procedures. According to this, after the business processes are outlined to be included in the system, Company X must make sure they are integrated in the system so they can be followed correctly. For example, Company X would have to make sure the e-system handles a “priority 1” critical customer problem in a more urgent way somehow than a lower “priority 3” normal problem. Next in this area Messner examines the factor of “System Quality”. Here he looks into the usability of the system related to FLE’s needs. So for Company X, this factor would evaluate whether Company X’s e-system processes function accordingly to how the support employees work. Lastly in this area Messner covers the important factor of “Information Quality”. This covers how a system must somehow produce high quality information and data to enhance employee and customer usage. A good example here would be if Customer X incorporates SSS into the new e-
system, then they must ensure customers only have access to correct and relevant information. It could be considered a great liability to an ERP Vendor if the e-system offered information that caused a serious problem in a customer’s ERP system. Due to the amount of sensitive financial information and data stored in a customer’s ERP system, there are often many aspects of information security that also must be considered SSS and quality of accessible information. Providing incorrect information could cause a huge security hazard and IT compliance problems for a customer.

Equally stemming from the first area in Messner’s model is “FLE qualifications and enablement”. This area first brings out in the factor “FLE knowledge”, the underlying importance that a vendor’s employees actually know how to use the system successfully. This isn’t a factor Company X can over look. However, the level of complexity of an e-system will most likely affects the general knowledge of usage. Also, this feeds into how much intensity is required in Messner’s next factor of “Support quality”. This factor relates to the importance of high quality training required to use a system properly, and further support when problems occur. Company X will have to keep this factor in mind when choosing a future e-system, and understand that a more complex system may require more time and expenses in training and support.

The next area Messner goes through that the last two areas feed into is “FLE approval and pertinence”. Here he discusses the factor of “FLE approval of system”, and thus showing the relevance of employees highly regarding the system. Company X could ensure this factor by incorporating support employees into the pre-testing of any future e-systems being considered. Of course the weight of this factor corresponds to the next factor Messner brings up in this area called “FLE importance of system”. The higher this factor is, then the higher the previous factor stands. Company X already is aware of how important their support e-system is to customers, and therefore they have initiated my research. I have therefore left this area out of my data collection to keep things a simple as possible. This factor does brings up, however, the importance of Company X to keep in mind they require a system with low probability of down-time, due to the importance of an e-system in maintaining high quality of support to customers. This is especially relevant in dealing with critical problems customers are having with their ERP system.

Lastly, in Messner’s model the areas “System Basis”, and “FLE approval and pertinence” feed into the end area called “Business output”. Here Messner includes the factor of “customer experience”, directly showing the link between the e-system, and how customers feel about it. In this research, Company X requires that a new e-system only improves customer’s experience. To make sure this happens with a future e-system, Company X could offer some pre-testing from customer. Or they could even directly survey customers to find out there desires. What Company X decides to include in its future e-system could also be affected by Messner’s next factor of “Net Benefits”. In Messner’s example using a financial advisory system, this related to how that system offers customer’s ability to purchase future products. Currently, Company X’s support e-system doesn’t allow that. But of course why shouldn’t Company X consider this factor for the future? Company X should seriously consider expanding its sales somehow
through its support e-system. An example could be a direct link to its CRM used by sales teams, and offer customer’s the ability to request sales advice.

Now that I have analyzed and made some conclusions regarding the different factors in Messner’s model, in the next section I will show how these continue to play a role when plugging in and analyzing the results from my field work.

5.2 Analysis using field work

In this section I will finally get to examine the data I collected which was presented in the last chapter. First, as according to my research plan, I will analyze the quantitative data. Then more intensely I will analyze the qualitative data collected. After this in the third section, I will take things further by analyzing these results with findings analyzed in the previous section related to Messner’s Model. In the next Conclusions Chapter these conclusions from the field work will be analyzed with conclusions from the literature review to result in final recommendations for Company X in moving forward with the new e-system.

5.2.1 Findings from quantitative data collected

Four of the areas defined in Messner’s model were put to the test when Company X rated the statements shown in Chapter 4 in reference to their current e-system. According to my research plan, I will very generally go through the results and more weight will go into my qualitative analysis after. The average results of the quantitative data were all in the middle range of Somewhat Disagree (3) to Somewhat Agree (4). The fact that none of the averages came out on the higher end of fully agree gives further evidence that the current e-system is not satisfactory and a future improved one is needed.

The area of “Market Alignment” resulted in the highest average of 4.15. As all factors came out slightly above a (4). This shows that within this area Company X is already minimally doing the correct things regarding this factor, however they should maintain, and possibly think about improving how these factors should influence the future e-system. The mere awareness of these factors in the current e-system could promote a more intense fulfillment in a future e-system. The next area of ”System basis” yielded the lowest score of 3.1. All the factors resulted in scores less then the median of 3.5, and the lowest being 2.85 in “process alignment”. This shows a great need for Company X to consider this factor in their future e-system. Information quality averaged at only 3.1, and as the current e-system is only accessed internally, this factor could be of great importance to improve if allowing customer’s access in the future e-system. In the area of “FLE qualification enablement” the average of 3.76 seems quite low, however the factor of “FLE knowledge” was on the positive end of 4.0, leaving the “Support quality” on the lower end. It’s almost as unsubstantial formal training in the current system exists, however the support employees figure things out. The level of consideration to Company X to this factor on influencing the future e-system will be related to the
The last area where data was collected is “Business output”. In this area the single factor of “Customer experience” yielded a positive average of 4.05. This basic positive level, added to a new e-system that offered the other factor of “net benefits” (included in customer access), then this area’s average would already increase.

The results extracted here offer interesting reflections from Messner’s model to assist in answering my research question. Next I will analyze the heavier weighted qualitative answers from Company X’s support team.

5.2.2 Findings from qualitative data collected

The open-ended question regarding Company X’s support teams top requests for what should be added in a future e-system, directly provide a variety of answers to what factors should influence Company X’s future e-system. Analyzing the responses here provide management a shortcut to lengthy meetings with support employees where they try and figure this out. As mentioned in Chapter 4, the results of qualitative data collection from Company X’s support team members resulted in categories I called: Systems Integration, Customer Access, Aesthetics, Performance, Information availability.

The first category of “Systems Integration” appears to have the most responses from the employees. 6 out of the 10 employees made comments regarding the topic of “Email integration”. The current e-system does not connect or integrate with any other system. The support employees communicate with customers either by phone or email. Company X uses the standard Microsoft products, and more specifically “Outlook” for emails. In these responses related to email integration and the future e-system, there appears to be 2 responses just explicitly related to a general desire of future email integration in the new e-system. And then 2 vs. 2 responses stating “Outlook” as the preferred system to integrate with while using it’s features available, verses the new e-system handling email communication on its own not using “Outlook”. Due to this clear divide among the support team, Company X should investigate this topic further to decide which way to go. The next popular factor mentioned in this category could also affect how the future e-system integrates with external products. The aspect of integrating “tools” was brought up, and this was mentioned to include external documentation programs as part of these. The support team seems to want the future e-system to integrate the ability to connect documentation to the problem cases they create. And sufficiently connect customer dial-in information. Also brought up in this section to a lesser extent is for the new e-system to integrate with Company X’s sales CRM database (Customer Relationship Management), and to keep one point of location to all of customer’s information. Finally, also mentioned in the lowest extent, is to integrate the phone system to the new e-system. With an introduction of SSS, this need could be seen to a lower extent.

The next popular category is entitled “Information Availability”. In this category I included all the requests the support employees wrote related to what they desire in
Information displayed in a future e-system. Three of the comments related to the future e-system containing effective searching abilities. There is a desire for fast access to relevant information. More specifically, one employee suggesting that it is all “one click away”. Then there are also three responses regarding the future e-system to have an improved method of offering a good overview of problem cases logged to employees and the status of the progress of each case. One employee specifies the importance of this regarding “billable cases” - cases where a customer does not have a support contract, and is therefore being billed based on the total time spent on the case. It appears that Company X must incorporate this effectively with simple, aesthetically pleasing visuals. In general, this factor once again becomes increasing important if Company X is to allow SSS, and customers to view certain things in the future e-system.

Directly linked to availability of Information is the next popular category of “Performance”. The general theme listed under this category by Company X’s employees is “Fast” performance. This is obviously due to issues with the current system. Two of the comments note that speed is especially important during case creation. And one specifies the importance of this when “searching” the e-system. Another comment suggests that the current e-system does not offer fast enough speed across all browser methods of accessing the system. Related to all these comments, Company X must address speed factors in its new E-system. And once again, if Company X allows customer’s SSS access to the future e-system, then logically the future system must have a fast speed. This also can be crucial when customers log a high priority case that requires fast resolution.

The next popular category is entitled “Aesthetics”. Most of these comments are explaining dissatisfaction with the current support e-system’s visual appearance. For example, the employees complain of the current system as an “information salad”, and not properly or clearly identifying functionality on text (for example as a link), or the purpose of showing certain text. Here most of Company X’s support employees made comments regarding the importance of a physically nice looking system in the future. One employee even went as far as to suggest it is “eye candy”. All the comments seem to sum up to a requirement of the future system to contain clear intuitive visuals that properly identify purpose and next steps. All the comments in this section seem to complement each other, and there are no contradictions here. Once again, if Company X offers any kind of SSS in the future e-system, then it must ensure further that the visual aspects of the system follow what the employee’s state here in this category.

The last and least commented category is called “Customer Access”. All the comments contained various themes from the support employees related to what kind of access customers should have to the future e-system. Two of the comments directly explain that customers should have the ability to log there own problem cases. One of these explanations even points out an estimated time savings Company X would attain on average per week if this was allowed. This shows a great need for Company X to do further investigation into this idea with-in the factor of SSS. Two of the factors further express the need in this area of the e-system allowing customers to log-in and check the
status of their cases. This saves a lot of time support employees in Company X spend giving customers case updates via email or phone. One comment also brings up “FAQ” (Frequently Asked Questions) access to customers. This shows one level of customer access that could be provided by SSS, however Company X would need to further investigate what level of customer access the future e-system should offer.

The categories analyzed here don’t directly connect to the areas brought out from Messner’s model. In the next section I will make an analysis of the 2, giving a heavier weight to this qualitative data.

Figure 5.2- Categories related to Messner’s Areas

5.2.3 Conclusions from combining data collected

In best answering the research question in this study of finding factors influencing Company X’s future e-system, this section will do further analysis. Here I will analyze the results of my qualitative data conclusions with the lower weighted quantitative data conclusions.

Overall the first thing I noticed is how the categories identified through the qualitative data don’t fully correlate with the areas in Messner’s model. But still one can find factors that relate to one-another. Figure 5.2 has been created to show the relationships. Company X’s support teams comments in the largest category of “Integration” directly relates the factor of “process alignment” defined under Messner’s area of “System basis”.

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The low score exhibited here with Company X's current e-system, combined with so many comments about improvements in the future e-system clearly show the importance of this factor. And if Company X decides to offer SSS, then the factor of “net benefits”, in the area of “Business output” relates to integration factors of connecting the future e-system to the CRM system used by the sales team.

In the category of “aesthetics” again the comments are directly related to a under Messner’s area of “System Basis”. Here the factor of “Information quality” is addressed. For example if a link is exhibited in the system, then it must take a user to the appropriate section. To keep things visually clear and simple, the information displayed in the system must be of high quality and have a purpose for being available. In Messner’s factor of “FLE approval of system”, it seems that Company X should get approval of the future e-systems aesthetics before putting it into use.

The “performance” category once again connects to Messner’s area of “system basis” under the factor of “system quality”. As this factor ranks low in the current system, and the support team members make comments regarding the future improvement of this, Company X should do performance testing when choosing a future e-system. This requirement increases with SSS under Messner’s factor of “customer experience”. Obviously the performance requirements for customers happily using the new e-system will have to be taken into consideration not to lower the current satisfaction levels.

Also directly linking to Messner’s “system basis” area is the category of “Information availability”. It obviously connects with the factor of “Information Quality” and then further into “System Quality”. Once again due to the low scores in this area, Company X must ensure that a future e-system has capabilities to do proper information searches displaying quality results for a variety of situations.

The final category to mention is “customer access”. As this is an underlying notion already happening in Messner’s system evaluation, then it doesn’t directly relate to his model. What can be noted as important factors here are “process alignment” and “customer experience”. If company X’s chooses to implement SSS in its future support e-system, then should not only take into consideration there own business processes, but also that of the customer. This may require investigation directly with some customers. Also again, this category shows the importance of Messer’s factor “customer experience”. To keep or increase current customer satisfaction levels if allowing SSS in the future e-system, Company X will have to consider how this can be accomplished.

5.3 Analysis Summary

When analyzing the initial points from my theoretical findings, a conclusion was made regarding the importance of SSS throughout the ERP cycle, creating required M&S knowledge known to customers early on. Then, analyzing Messner’s model as a theoretical framework, certain factors related to areas with-in Messner’s model show to be relevant to Company X. Then the further analysis of the data collected in field work
mainly shows how Messner’s area of “System Basis” appears to be the popular fit to factors brought up in the qualitative data. This strong link cannot be ignored. And then second to this is “Business output”. The other areas were mostly left out by Company X’s support employees. The relevance of this will be checked over when drawing conclusions in my next chapter. Conclusions from my theoretical will also be involved in drawing the final suggestions to what factors Company X should consider influencing it future e-system.
6. Conclusions

6.1 Bottom-line findings

Throughout this research paper many conclusions are explained in regards to factors that influence an ERP vendor’s support e-system. All the findings create an awareness of the factors out there for Company X and other organizations to consider that are in a similar situations with support e-systems.

In this paper the repeated factor of an e-system offering customer’s SSS concludes to be one of high importance. It is brought up in almost all sections of data analysis, starting in the literature review and then continuing as a theme in the data collection and analysis. It can further be drawn that when implementing SSS other factors become highly influential. Company X must adhere to what seems to be an industry standard in offering customers the ability to access the system for problem solving. Next, when implementing SSS there is significant evidence that Messner’s “process alignment” factor both mentioned theoretically and then by current support employees, plays a highly important role. So Company X should identify and then incorporate this into their future support e-system. And then lastly, Messner’s factor of keeping a high quality of information also tops the list of what needs to be considered in the new e-system. Company X’s qualitative responses addresses this in many responses. The research shows that Company X must offer access to this high quality information, while ensuring the display remains aesthetically pleasing.

Based the most important findings in this research, the following 3 points have been put together to summarize the final recommendations to Company X’s management:

- Comply with the industry standards and offer SSS (Self-Service-Support) to customers in the future E-system.

- Address “process alignment” by identifying the details that encompass this, and then incorporate it into the future e-system, with the appropriate level of systems integration for smooth sailing.

- Ensure the new E-system has a high quality of information available in a logical presentation that has been pre-tested to ensure quality.
6.2 Reflections of the study

This study has offered many suggestions to Company X for moving forward in picking a new e-system. It has brought forth a variety of areas and categories that ERP vendors should take into consideration when creating an e-system to support customers. The biggest surprise I had in this study is how the qualitative response categories did not largely fit directly with the areas in Messner’s model. Knowing this ahead of time, it may have made more sense here to start the field work research by gathering qualitative data. And thereafter conduct quantitative surveys based on the categories defined to gather more directly related data results. This could have highlighted more factors within the relevant categories. Because many of Messner’s factors did not relate to evidence analyzed from the literature review and field work, it was difficult to decide what to do with this extra information other than explain it.

This study has been pre-defined to cover only a part of the large role an e-system plays in the customer support process of ERP software. This limitation must be kept in mind throughout this study; however it can be looked at negatively to ignore the customer’s opinion. As suggested in the purpose of the study, an e-system that satisfies the employees who use it, in my opinion will link positively to customer usage. This assumption has not directly been investigated in this study, and would add further relevance to my results if somehow looked into. The next section further goes through possible future investigations.

6.3 Proposals for future studies

To further test the conclusions made from this study, one could definitely conduct a similar study within another case setting. Also another study actually evaluating the effectiveness of the new e-system Company X actually implements could test conclusions made in this study. As this study was pre-defined as limited to gathering data to Company X’s support employees who directly use the customer support e-system, a further study interviewing other Company X employees who use the e-system could also add to the findings of this study. For example, after one of Company X’s support team members identifies a customer’s issue as a potential bug, then in the current support e-system, the “case” created is brought to the attention of a software developer. Although the software developer is never in direct contact with the customer, they read and add to the “case” notes, often searching the system for similar cases that many contain the same issue. This group of users of the support system could definitely be a valuable group to gather research from as far as effectiveness in support systems. And then of course, if access were granted, it would be highly useful to gather data directly from the ERP customers designated as the “support contacts”. 
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Appendix A

Survey given to Company X's Support Team-

Please rate the following 20 statements with either a 1,2,3,4,5, or 6 with the ratings:

1. Strongly Disagree
2. Disagree
3. Somewhat Disagree
4. Somewhat Agree
5. Agree
6. Strongly Agree

The current Customer Support System (“The Portal”):

1. In general, the system is “easy-to-use”.
2. The system has no noteworthy down-times.
3. The system performance time is – in general– acceptable.
4. I can configure the system to meet my personal needs.
5. The system provides me with sufficient, correct and relevant information in all customer situations.
6. Critical information in the system is always up-to-date and consistent.
7. All displayed information in the system is easy to understand.
8. I can rely on the system to guide me in the service processes.
9. The system is integrated; I do not need to call different applications for one single customer problem.
10. I know how to use and leverage the system's functionality to provide premier customer experience.
11. I am receiving sufficient training to confidently handle the system.
12. The system documentation is useful in guiding me through the system. It is complete and easy to understand.

13. I feel that the customer is happy with the output and information I extract from the system.

14. I feel that the current system helps me to increase customer satisfaction.

General CSS related:

15. Our procedures and guidelines are aligned with the needs of our customers.

16. The products and services we offer across all channels meet our customers’ needs.

17. Our products and services are most competitive.

18. I know about our customer and market strategy.

19. Our procedures and guidelines help me with my daily business and to work proactively with my customers.

20. My management is committed to provide me with leading-edge tools and systems so that I can perform better.

21. My management knows about the issues I have with my tools and systems.

22. Information I have entered into the system is taken as a basis for management decisions.

23. Imagine a new or altered CSS Customer Support E-System: Please write your top requests for what you think should be added to the new system. Feel free to add additional pages if the below space is not enough.

Thank you for your time!
Appendix B

Area 1: Market alignment – Total Average 4.15

Q16-18: “Strategy Fit”
16=4.15
17=3.95
18=4.0
Total average- 4.03

Q15+19: “Business Process Fit”
15=4.35
19=4.1
Total average- 4.225

Q20-22: “Management commitment”
20=3.8
21=5.1
22=3.75
Total average- 4.22

Area 2: System Basis- Total Average 3.15

Q1-4: “System Quality”
1=3
2=4.4
3=2.9
4=3.1
Total Average- 3.35

Q5-7: “Information Quality”
5=3.3
6=2.9
7=3.1
Total Average- 3.1

Q8-9: “Process Alignment”
8=2.7
9=3.0
Total Average- 2.85
**Area 3: FLE qualification and enablement- Total Average 3.76**

Q10: “FLE Knowledge”
  10=4.0

Q11-12: “Support Quality”
  11=4.1
  12=2.9
  Total average- 3.5

**Area 4: Business output- 3.9**

Q13-14: “Customer Experience”
  13=4.35
  14=3.75
  Total Average- 4.05