Customer Service process
IT-enabled support
Fit or misfit?
-A real world case

Elizabeth Hägg, Magnus Wärja, Lars-Olof Johansson
Lunds University, Lunds and Kristianstads University,
elizabeth.hagg@ics.lu.se, magnus.warja@ics.lu.se and lars-olof.johansson@hkr.se

Abstract. This paper is a description of a real world case which focuses on a method to define the major gaps between functional requirements and existing support in a traditional ERP system. To identify and define the major gaps the method is using short interviews, existing documentation and graphic process diagrams. The report covers the process *Customer Contact – Order Acknowledgement* for a global chemicals manufacturer, Perstorp. The group in focus for this study is Customer Service. The results of this case were presented to Perstorp's Customer Service as well as IT management as background material to assess improvement possibilities for both processes, IT support and for a new ERP strategy. Many other businesses are in similar situations. The aim in publishing this research paper is that these findings can be of practical use to other businesses as well as be an empirical foundation for other papers and possibly further research.

1. Introduction

This research paper describes the validation of a method consisting of *short user interviews*, *current process documentation* and *graphic process diagrams* to identify and define the major gaps between users' requirements for efficient and effective use of an IS system and its current functionality. The case covers the process *Customer Contact – Order Acknowledgement* for a global chemicals manufacturer, Perstorp. The group in focus is Customer Service (CS). The results of the Case were presented to Perstorp's Customer Service and IT management as background material to assess improvement possibilities for both focus areas.

This goal was to refine and use a working method to discover areas where there are gaps between current process functionality and required functionality, creating inefficiencies and thereby lower customer service. The main author defines a gap as: “Necessary or important information is lacking, incomplete or fragmented. The process is slowed or halted while the information is retrieved or compiled.” The work done by CS is totally driven by access to and use of information. Therefore functionality is defined as “access to relevant information, at the right time, presented meaningfully, in the right place”. The report also gives input to a new ERP strategy.

The basic data was found in existing documentation from the ISO system, such as process charts and instructions, by observing work situations and by holding interviews with major stakeholders, giving both overall and detailed information.

The ISO-defined process of Perstorp describes how CS uses different systems to deliver the required results. The method uses an alternative graphic process description, focusing on the overall process steps, the information flow and its transformation in the process steps, as well as the roles responsible for each step. The focus on the processes’ value-added activities and the transformation of information enables another discussion covering all information and actions used to achieve the process goal. This is an approach that the main author has used a number of times at Perstorp with very positive results.

Interviews and observations were used both to get a more overall understanding of the actual working situation, as well as input from CS personnel and persons in functions that are integrated with CS. Three functions are included to a minor degree, to see if there are functional gaps in the process hand-over from one responsibility area to the next. The adjoining functions included are: Switchboard, for incoming customer contact calls; Sales, for customer requirements in general and order data specifically; Shipping for delivery of products ordered.

Hopefully, the method and approach described in this article can be used in other areas, so that relatively short studies can uncover where there is low-hanging fruit or functional gaps. We believe many other companies and organizations face similar issues as Perstorp does.

The main author of this paper is Elizabeth Hägg. Elizabeth came to Perstorp 1998 to create an internal IT organization to support their global IT needs. As she phases out her management responsibilities to a new management group, she takes the opportunity to act as senior advisor and internal consultant with a focus on improving the efficiency and effectiveness of end-to-end processes.

1.1 Aim of this research paper

The aim for this paper is to be an empirical foundation for other papers. For example the authors will, in the near future, publish an analysis of the working method described in this case.

The authors are aware that this is not an ordinary research paper but more of a description of a real world case. According to Woods (2008) this type of description and research is important:

> "IT professionals with responsibility for ERP strategy can use this research to define a vision to make ERP more productive for the enterprise."

The overall problem that Elizabeth has to deal with in the case described in this research paper could be formulated in the following questions:

User viewpoint: What are the daily challenges that CS users experience at Perstorp in fulfilling their process goals? To what degree is ERP the problem?

Usefulness of IT-support and ERP's role: What changes would best facilitate CS' order entry process? Does Perstorp have a realistic alternative to the major effort of installing a new ERP system? Can the current IT-enabled system setup be revamped and improved with the current ERP system continuing to be a major component?

1.3 Structure of the paper

The paper will be structured in the following way:

- Section 2 Background information.
- Section 3 Working method.
- Section 4 Method in action
- Section 5 Reflections and major findings (method in action)
- Section 6 Method impact (method in action)

2. Background information

The supporting systems for the Customer Service Group (CS) in Perstorp, a global chemicals manufacturer are in focus. This function, the first instance in handling incoming orders, was challenged in achieving their goals with the IT-enabled systems they now use. Elizabeth's work was to document and create an overall identification of the pain points to help CS as well as Perstorp agree on

where the fit and misfit of these systems actually reside. Figure 1 shows that CS works within the Order area in the Supply
Chain.

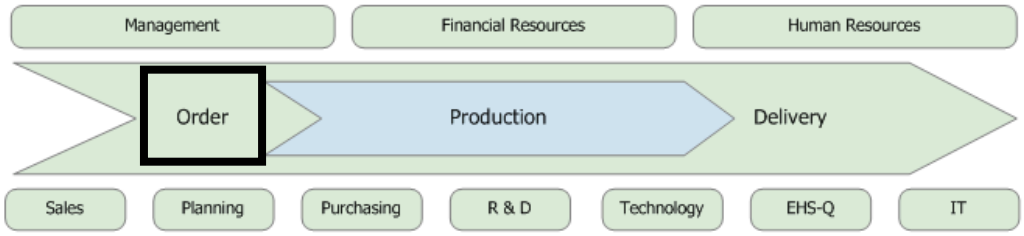

Figure 1: Supply Chain of Perstorp, Source: Perstorp intranet.

CS supplies global customers which order products for many different usages, all linked to specific requirements from the customer and subject to stringent quality and security regulations. The process studied is a section of the ISO certified workflow steps *Customer Contact – Order Acknowledgement.* The focus for Elizabeth's work is marked in figure 2 and 3.

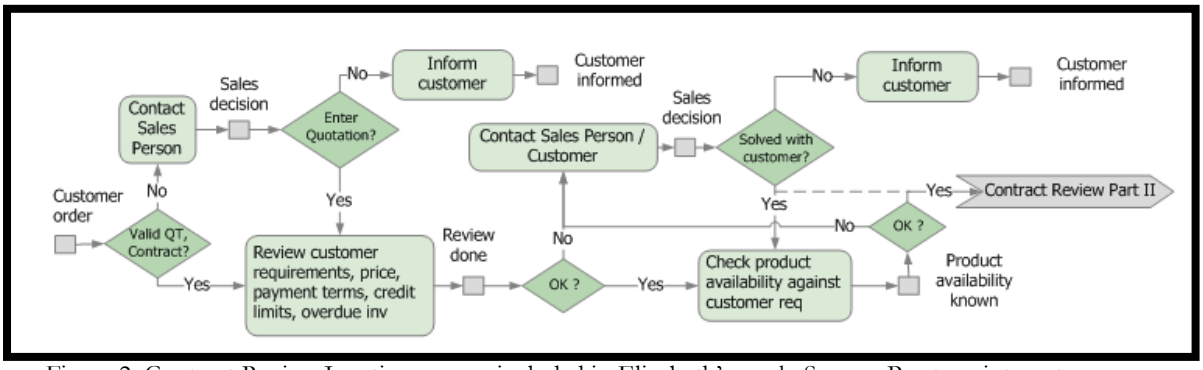

Figure 2: Contract Review I, entire process included in Elizabeth's work. Source: Perstorp intranet.

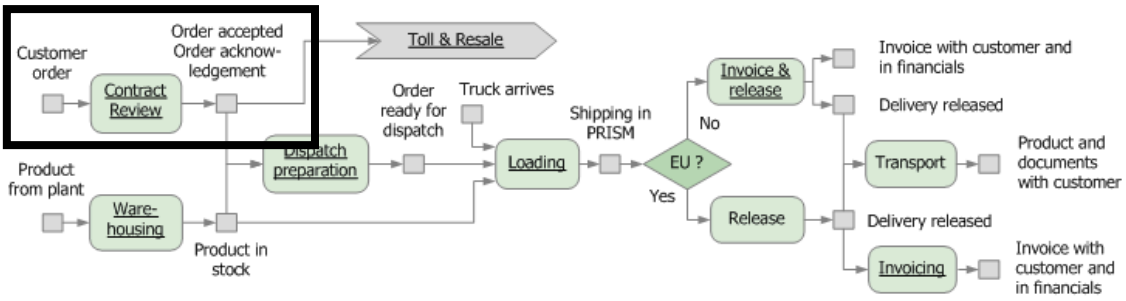

Figure 3: Contract Review II: Area marked included Elizabeth's work. Source: Perstorp intranet.

CS uses the ERP system Prism, which was installed in the enterprise during the late 1980's and is still the one standard ERP system for Perstorp. This system is a classic representation of the monolithic ERP system where processes and functional capabilities are defined by the system in all its many modules.

Perstorp has used the installation of Prism to achieve many of the classic goals of ERP systems as documented by Benders et al. (2005). Isomorphic tendencies of imitative forces may well have been an influencing factor in the choice of ERP system. Prism was installed by many process-based companies at that time. Currently, Perstorp considers Prism to be a competitive advantage, since the imitative alternative today is SAP (Benders et al., 2005).

The analyses and hard work in the installation phase has been well-done, but the fact remains that the system setup and its basic functions decide what alternatives are possible and what combinations of actions can be taken.

Some major pain points have been addressed by custom programming or by separate systems that contain important, detailed information such as the customer contact system CraMIS. This reflects the Change Management strategy used, analyzing requirements and technology capability to address certain areas within the total process (Nelson, a, 2007). Another consequence is an increased number of systems that CS must use in their daily work. E-mail, faxes and telephones are also major support systems for the Customer Service group.

The fact that CS must use many different systems that were not primarily created for or tailored for their use makes it difficult to train new CS members. The basic approach is the "container model" (Westelius et al., 2004). The new employee is filled with knowledge by learning the overall process and by working with pre-defined training modules focused on the processes that must be followed. This is also complemented with a gradual phasing-in to the more complicated facets of the CS. A possible weakness can be the "competency trap" that arises in an organization which is very good at using the current tools, precluding exploratory interest in other alternatives that could give better results (Levitt et al., 1988). Elizabeth believes that the double-loop-learning attitude at CS will deliver the necessary willingness to explore new alternatives.

CS works together with other groups in Perstorp, following and preceding their place in the supply chain. These interfacing groups use Prism and other systems in varying degrees. Each functional group must always focus their own goals and processes, making the intersection of processes a potential risk. They will be briefly included in this study, concerning their integration with CS.

Perstorp has considered installing a new ERP system but has delayed this extensive effort in favour of a major re-structuring of its own organization and an aggressive expansion plan that is showing good results, such as acquisitions of new sites and the creation of new products. Perstorp had decided that a new ERP strategy is necessary. A new strategy must be based on emerging needs and encompass new possibilities. New customers and newly developed products also put more pressure on the entire sales and supply chain. Improvement discussions are ongoing and there is an active interest to evolve to more user-friendly systems. The ultimate goal for Perstorp is to define and implement the most

efficient and effective supporting systems for the fulfilment the entire business process as it functions now, with capability to develop with future changes.

3. Working method

In order to find gaps, Elizabeth made interviews with those that work with the ERP and related systems. She collected interviews from different groups, made observations of work situations, studied documentation and collected metrics in order to get a full picture of the complex situation in the short time available. A second central method is the use of graphic process and problem descriptions.

The working method can briefly be described in the following nine steps:

1. Collect data which is available about CS, its goal and its process, study and understand it to an overall degree.
2. Interviews with personnel within CS, both managers and the CS group, are vital to the study.
3. Create a Graphic Process Chart (GPC) to enable discussions about the work process as distinguished from the work flow documented in the ISO system. Adapt the GPC with input given so that it is understood and is a positive input in identifying CS work characteristics and needs.
4. Identify the major interfaces to other departments and check if the process continues seamlessly over the boundary or not by interviewing the managers of those processes.
5. Create a new chart with process – business objective relations, called GPC/WHY for each process section. The business objective is called WHY in BusinessGenetic terms (Tyler et al., 2007). Use the WHY as guidance to align possible improvements to the specific goal for each process step.
6. Observe how CS works with the systems at its disposal. Map where all major standard systems are involved in each section of the GPC.
7. Use the graphic process as a medium and tool for user input, discussion and user-adjusted process definitions with users' own comments concerning where the pain points are. Here all CS members and interfacing departments can participate.
8. Use the data found to define the pain points and system fit or mis-fit.
9. Present the gaps with a description of what defines each gap, and other relevant information

4. Method in action

The purpose of Elizabeth's report was to analyze the Customer Service Group (CS) process *Customer Contact – Order Acknowledgement* for a global chemicals manufacturer, Perstorp, and present a first assessment of the major gaps (create an overall identification of the pain points) between the actual support given by IT-enabled supporting systems, adjoining processes and the current functional requirements. The data was collected via the workflow charts, by some short interviews and by creating the first Graphic Process Chart (GPC) with Kim Resistance Line (KRL).

The flowcharts in this report, Figures 2 and 3, define the basis of the CS *Customer Contact – Order Acknowledgement.* In the ISO documentation, an additional workflow is shown for order entry via a web page. This workflow was included in creating the overall GPC, to assure that this study did not exclude any relevant information. Web page order entry is a sub-set of Contract Review I and II. Elizabeth identified common actions in the workflow charts and grouped them with numbers according to how they were related in sequence and as actions that handle specific information, figure 4. Sales can be contacted for several reasons, so all Sales contacts were drawn as one action box, independent of the reason for contact.

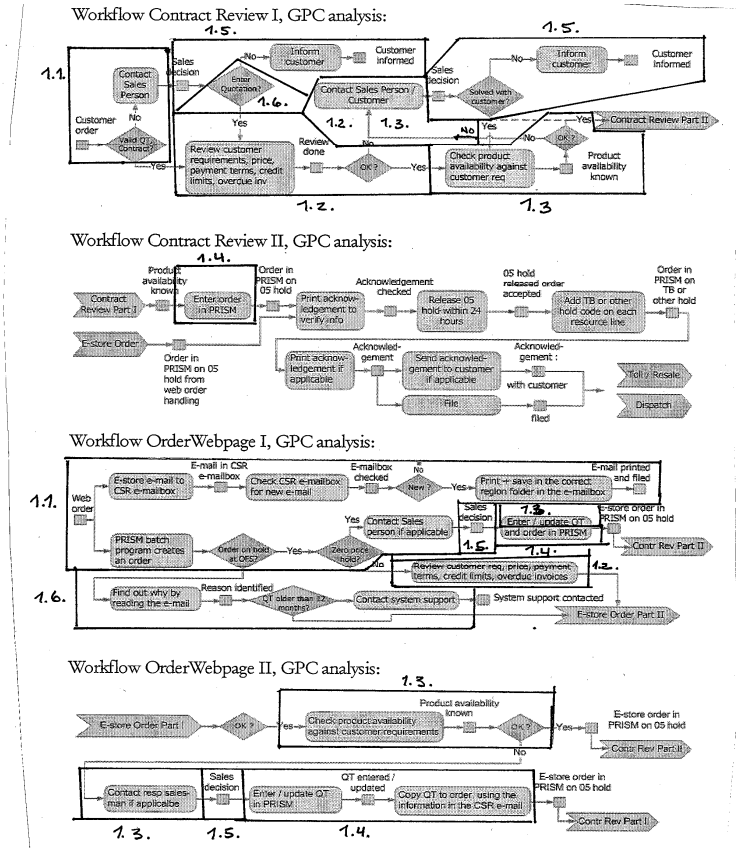

Figure 4: Workflow charts with numbered action grouping to create GPC. Source: Perstorp intranet, own.

Then Elizabeth discussed the content of the flowcharts with Prism training personnel to get more understanding about working with Prism. After that she created a first version of the GPC in order to use it as a reference in observing CS work and discussion the actual objectives of CS, figure 5.

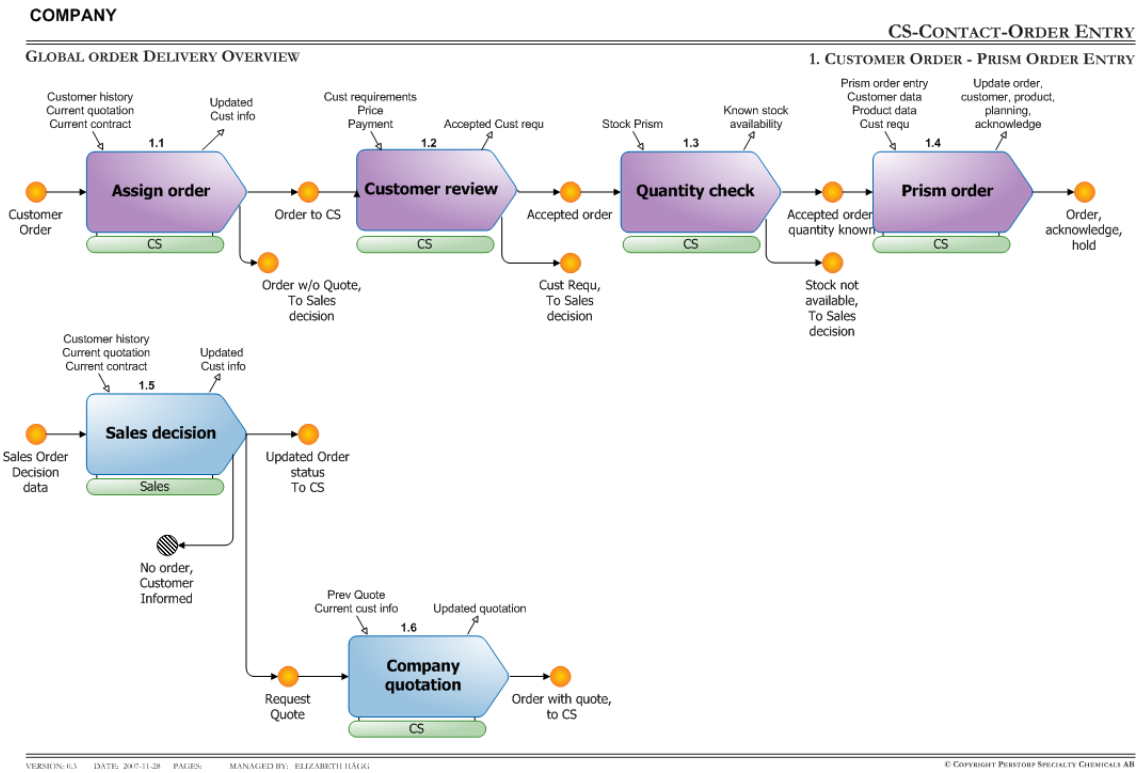

Figure 5: CS work actions in GPC.

The orange dots are objects that trigger and are transformed as they pass through the violet action boxes. The black dot is an action that is 'done' in this process. The information in and out is shown with arrows above the action blocks. The actors are shown in green squares below.

4.1 Interviews with CS personnel

When the first GPC was done, interviews were held with CS personnel to gain insight in their work as well as with the Global Director Customer Service and the local Manager. The majority of personnel in Perstorp work in Sweden. With limited time as well as for practical reasons Elizabeth limited her interviews to persons in Sweden. One positive point is that many of these persons are not Swedish and have extensive experience from other countries. One Swedish site has previously used another ERP system which was more modern and had a graphic interface. Elizabeth interviewed personal at that site as well, to explore the difference between working with green-screen as compared to graphic ERP systems. She also held brief interviews with managers from interfacing processes.

CS is a global group, with CS personnel around the globe. CS has just announced a new organization for 2008 with Strategic Customer Service Centers in Singapore, India, Russia, Italy, Sweden, Paris, UK, USA, Brazil and Chile. The systems used are global but this study contains only information from the two Swedish sites.

Managers: The managers mentioned the central role that CS plays in contact with customers, sales, production and shipping. They welcome an analysis that can pinpoint some areas of improvement, since the organization itself will start a project *Customer Service Excellence* in 2008.

Concerning the process of receiving and booking orders, the CS managers interviewed state that two core values of Perstorp, *reliability* and *responsibility* are major characteristics of CS' daily work. Customer orders have many specifications that must be checked for correctness. Most of these are combined in the workflow area Contract Review I and the action box *Review Customer Requirements*. Translated into creating an order, it means: correct price according to order input, correct product for customer, marking and other specifics according to customer requirements, quantity according to customer and Perstorp

agreement as well as available stock, correct delivery date, correct financial status of customer.

CS members: CS feedback in comparison with other similar systems shows an appreciation of the fast response time and availability of Prism. However, other ERP systems have been easier to navigate in and information easier to find. Prism takes a long time to learn and there are many screens to navigate to finish an order. Any new system should be easy to navigate and to find information.

Training personnel: The dream is to put the requirements in at one and get out the correct result automatically in the other end! There is no set time for how long it takes to learn Prism. The ideal is that the person has worked for four weeks before coming to training, so that they have a general understanding of the system first. Most learning has to be through actual CS experience on the job. After the first training period a person should work for a half-year before taking more training. Most persons feel at home in their role after one year. Customer Review is the most complex part in creating an order, since there is much data to check from different sources. There is no workflow to steer in which order these checks are done. It is not always possible to finish an order at one work session, which can require that CS must remember to adjust the order at a later session, but within the time limit set for order entry.

4.2 Create a improved GPC

The GPC was given to CS managers and interviewed CS persons. It was also given to persons in the adjoining Swedish departments, Switchboard, Sales and Shipping. CS management and Swedish CS personnel found the GPC easy to understand. They have decided to continue to discuss the GPC in order to define it, with possible adjustments, as a description of their work area, in addition to the workflow chart of how they use their systems.

Some switchboard personnel studied the chart but did not have comments. Sales management considered the GPC easy to understand even if it looked complicated at first glance. It shows realistic relations and information data. Global Logistics Management was interested in the GPC and found it easy to understand. He kept his copy to study, since logistics continually works with their processes. Shipping did not have time to study the GPC.

4.3 Process integration over boundaries

The boundaries studied were; Switchboard and Global Sales.

Switchboard: 99% of calls to CS are those who have called a specific CS person but have not reached them. When persons call directly to the switchboard and want to talk to CS, it is a challenge to know who should take the call since CS is organized according to geography and the switchboard sees only the country telephone codes on their screen. Another problem occurs when there are no

available persons in CS to take a call. This has been the subject of discussions between CS and Switchboard and some statistics have been used to document and help address this problem.

Global Sales: Since raw material prices are very volatile, pricing issues are more and more important and price information is increasingly in focus for all parties. Since sales persons often travel to meet with customers, it is a challenge to get price information to CS as rapidly as possible. Perstorp has addressed the problem but more can be done. Sales person: We work with value added selling. What is important is that if there are any hiccups in the path of an order, nothing should fall between the chairs. It must be clear who is responsible to see to it that the order is handled as required.

4.4 Observation of order entry

One personal observation of order entry gave a good idea of the general setup of entering an order, the different systems that were accessed, as well as the data that CS has to check and keep in mind. The system is green-screen with many fields on the screen. All entries are via codes or hard data. Entry is fast if the codes are memorized. There is no workflow or other active support as to how to use the system. This also makes it flexible since the information screens can be combined in any order.

Another input from observing order entry is the different systems and other information sources that are accessed in the defined process. A graph, summarizing the different information sources used as input, is shown in figure 6 below. “Information in” is taken from the GPC and correlated with CS training personnel.

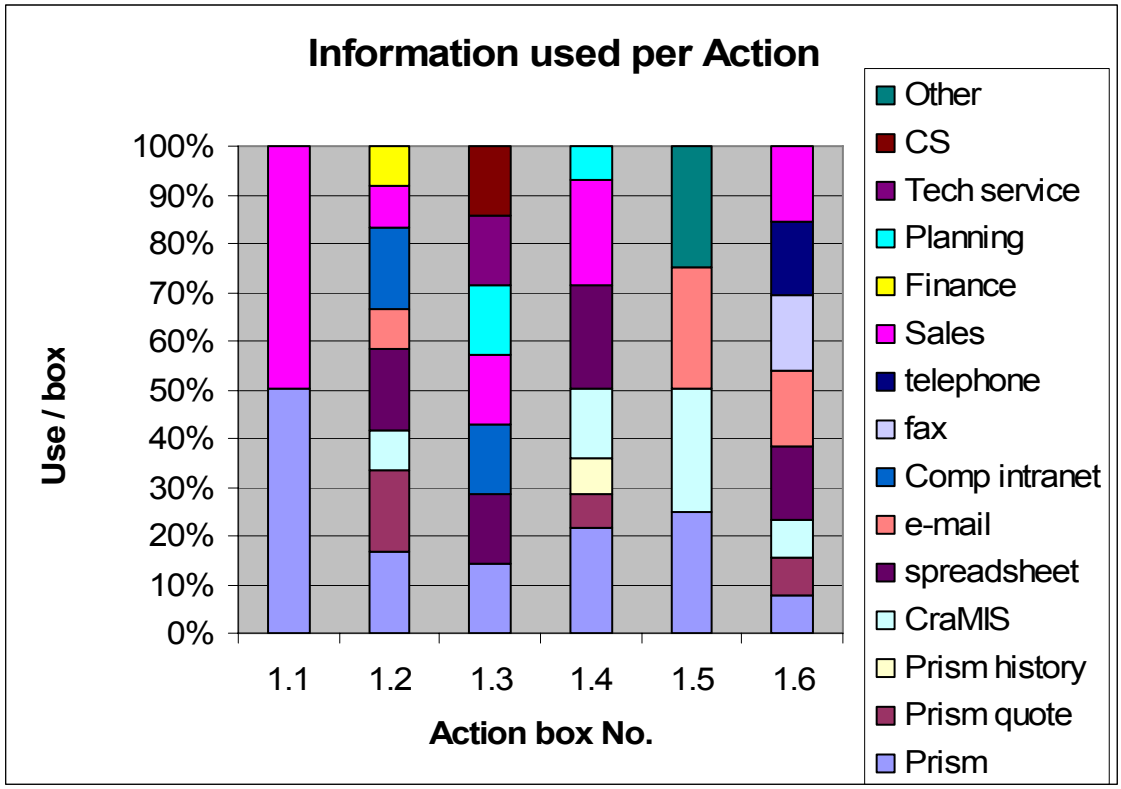

Figure 6: Info In/ Action, Source: own

The next chart groups the same data in sources used; Standard System: Prism, CraMIS and Perstorp intranet: Organization: CS, Technical service, Planning, Finance, Sales; Other: telephone, fax, spreadsheet, e-mail, other.

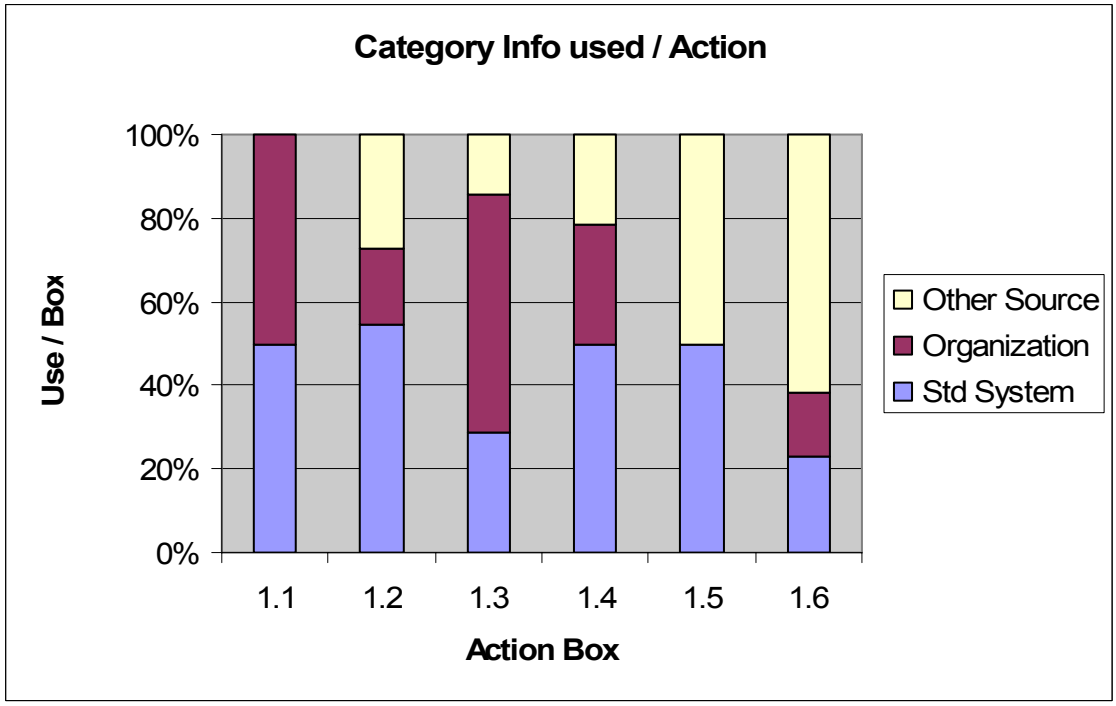

Figure 7: Category Info In/ Action, Source: own

In this analysis, 51% of the information used as input comes from standard systems, 10% comes from the organization and 39% comes from other sources, such as e-mail, spreadsheet, telephone and fax.

4.5 Graphic Process Chart (GPC) with Kim Resistance Line

The first GPC draft is an extraction and summarization of the ISO workflow diagrams. This was then presented to CS for discussion and adjustments. When the GPC was agreed, the CS members then gave feedback about the process via the Kim Resistance Line (KRL), a method created by Kim Lindborg at Perstorp in 2006. The line itself is drawn in the GPC, under the action boxes. The line illustrates the degree of difficulty for the user at each stage of the process. All the Graphic Process Chart / Kim Resistance Line (GPC/KRL) are compared with each other to find patterns. This is a quick and interactive way to discover areas where more studies should be worthwhile. It is also easily understood, in Elizabeth's experience, by all stakeholders at all levels. Most importantly, it is the direct analysis made by the experts who work with the process every day. It is non-threatening and is non-refutable.

The GPC has been used in both Swedish sites as the basis for illustrating process difficulties by drawing the Kim Resistance Line (KRL). Each CS person has taken one representative 'normal' order and one 'difficult' order. They have noted characteristics of each type of order on each GPC sheet. Then they have drawn the KRL below the actions boxes, depicting how challenging this action is, for this type of order, figure 8. A normal order is one where price, transportation and products are available.

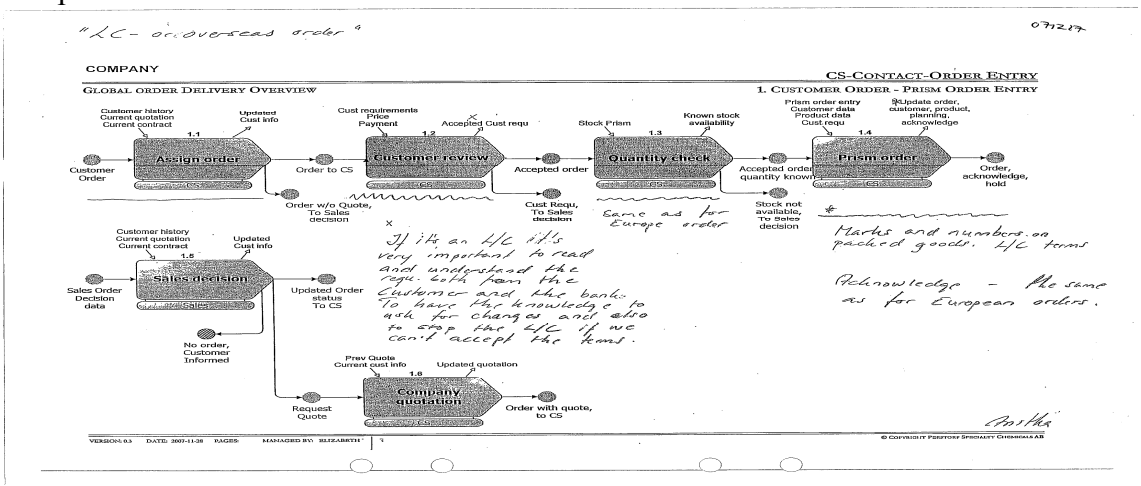

Figure 8: GPC/KRL Normal Order. Source: CS, own

Booking the order itself is not a problem, shown by the mildly undulating KRL. Comments focus on checking all requirements from customer, bank and

Perstorp as well as getting all products and shipping data correct before sending an order confirmation. Order entry in Prism is not an issue.

The next example, figure 9, is of a new customer where all specifications and data for the customer/product/requirements must be registered and confirmed before the order can be sent.

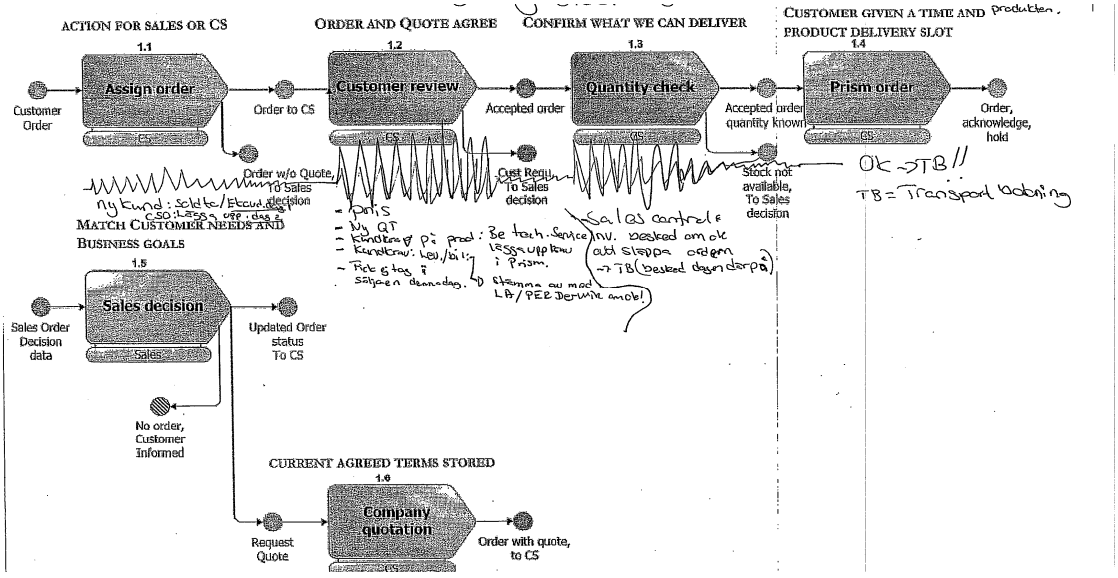

Figure 9: GPC/KRL, Difficult Order; Source: CS, own

In figure 10 all GPC/KRL have been analyzed to find commonalities and differences.

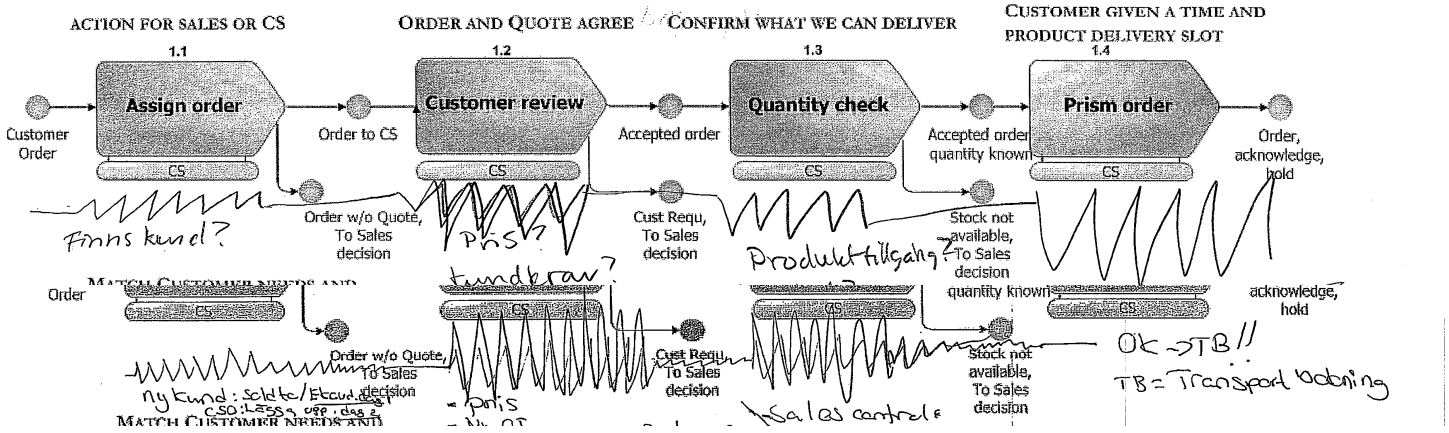

Figure 10: Similarities in 2 difficult orders Source: CS, own

In total four GPC/KRL charts were made for normal orders, and four for difficult orders. When all orders were traced on the same GPC, the most resistance was shown in areas 1.2, Customer review and 1.3, Quantity check, figure. 10.

When the normal orders only were traced, the resistance was highest in Customer review, box 1.2, with comments concerning the importance of checking that complicated customer requirements are correct in all areas, including shipping marks per product and in some cases, customer bank requirements. The correct warehouse to ship from must also be chosen correctly.

Difficult orders are characterized by problems in getting the basic data for order entry: new customer, new product for this customer, unclear price, product availability, or customer's financial status. Another major challenge is long lead times for delivery, creating related problems. An example of a difficult order is shown in figure 10. Difficult problems start when the order arrives (1.1) and continue to Customer review (1.2) in both cases. Some continue with problems in Quantity check (1.3), those with long delivery lead times are still difficult in Prism order (1.4).

There is no mention in this GPC/KRL data of problems with contacting the sales person or of understanding or updating the quotation. This can be based on the actual viewpoint of CS, or a focus on the actions that directly lead to creating an order. CS will be using the GPC/KRL for their own discussions, so other issues missing in this first analysis may be covered in CS' own studies.

The comments found in the GPC/KRL study correlate with the summarization of data input sources. A large percentage, 39%, of data for orders, is found in un-structured data, such as e-mail or spreadsheets, as opposed to the lists and screens of structured system data.

4.6 Pain points and gaps

Elizabeth's work was to document and create an overall identification of the pain points and find major gaps to help CS as well as Perstorp agree on where the fit and misfit of these systems actually reside.

4.7.1 Pain points

The pain points are presented in the order of the Graphic Process Chart (GPC) figure 5. The structure for each step is Process, Data, and Systems. The comments are drawn from interviews, observation and GPC/KRL graphs. The Customer Contact – Order Acknowledgement must be completed within a maximum time limit upon the receipt of a customer order.

Assign order

Process: Any delays here affect the rest of the process and may affect the capability to deliver products on time. The switchboard has problems if there are no available CS personnel that can take a customer call.

Data: The most common problem for CS with incoming orders is if the relevant quotation price is lacking. Contact must be made with the sales person, to

affirm the correct price. Even if the order can be processed and the price entered later, this creates more work and may hinder shipping. Similar problems arise if other data is missing, such as in the case of a totally new customer. The difficult orders in this study have all been difficult from this first step.

Systems: Here CS uses Prism and Sales as information input.

Customer review

Process: This step involves checking many different requirements, from the customer as well as Perstorp. The complexity and amount of data to be checked and codes to be entered are the hardest in this step. The data must also be correct since it defines the requirements for the next process steps.

Data: Data is entered in codes and remains as such on the screen; it is not translated into text for affirmation that the code was correct. The correct codes for required transportation documents vary in keeping with requirements for different regions, countries and product groups. Financial status may need to be re-affirmed if the delivery date is after a set cut-off period. VAT may or may not apply depending on the warehouse from which product is shipped, and VAT percentages vary from country to country. CS must keep this in mind in this section of the process, since the VAT function is here. The shipping warehouse is first chosen in the step Quantity Check.

Systems: Moving from screen to screen is fast but CS has the total responsibility to make sure that financial, regulatory, shipping and document requirements are met. Some controls made here must be repeated further on. If CS cannot find the data, contact must be made with the one or more internal groups to verify status and terms. The specific terms entered cannot be seen on the screen, only when the order acknowledgement is printed. There is no Print Preview function. An order may have to be printed several times in order to check that all conditions are correctly entered (CS interviews, observation). Prism, Perstorp intranet, CraMIS, spreadsheets, e-mail, fax, telephone and quotations where used to get the right input for this order.

Quantity check

Process: This step checks if the product ordered is available. Availability means that CS must also check product quality, the relevant warehouses where the product could be, and decide what the best shipping site is. If there are any unclarities about product or shipping, CS must contact the sales person, technical service or planning. It may be necessary to check financial status as well before finishing the order. It is up to CS to understand whom they should contact in each instance.

Data: this is the last preparatory step before finishing the order in Prism; all data available must be ready to be entered into Prism. The order confirmation is

printed in order to assure that all data and conditions are correct. This is the first possibility to see all the order data in a coherent structure.

Systems: Prism is the main system used here. Some products have limited availability or must comply with specific customer requirements. Therefore this step may require several different contacts with planning, shipping and technical service as well as sales before it can be finished

Prism entry

Process: Here all data is entered with codes and specific requirements copied from the quotation or other sources. CS must remember if any data is not confirmed or missing and check that all data is entered correctly. If vital data is missing, the order is put on hold. This step in the process has the most input, 14 different inputs.

Data: There is a specific code for “price check”, as well as several different hold codes according to the reason for the hold, including “other hold”.

System: the codes named above assist CS in handling orders despite deficit information for the order. Some customers accept orders where prices refer to a current price agreement and do not have the specific order price printed on the acknowledgement. The most recent price is given if no other price is indicated, since regulations require that a product value is on shipping documents.

Sales decision

Process: Sales persons are responsible for managing their customers’ relationship with Perstorp. They correspond with CS by mail, telephone, fax, personal discussions and data entered into CraMIS or compiled data in spreadsheets. Sales persons do not enter data in Prism.

Data: When data is missing for customer orders, or when orders differ from the sales agreement, CS must communicate with the sales person that is responsible for the order.

System: The systems most used by sales are e-mail and telephone. Others are Perstorp intranet, CraMIS, spreadsheets and extracts from other systems.

Perstorp quotation

Process: CS enters basic customer requirements that are valid for a period of time, usually at least three months. These requirements are the basis for all incoming orders during that time period. The amount of data for each customer is substantial, and it cannot be updated while orders are entered. Updating customer requirements takes a measurable amount of time.

Data: The data covers order requirements including products, price levels, quality specifications, transportation, payment conditions, labelling and legal restrictions, preferred warehouses or other customer requirements. Using this data

for every order is one of the metrics that is measured and actively discussed by CS.

Systems: Customer Requirements, the basis for quotation, is a specific module in Prism that stores global data for each customer. Subclasses for each customer can be entered, so that local variations are also possible. Data entered into Prism at this point arrives in many different forms and at different times. Thirteen inputs are defined in this study.

4.7.2 Gaps

The systems that CS uses in the Customer Contact – Order Acknowledgement process are not designed to smooth the transition from Assign Order, step 1.1 to Prism Order, step 1.4, the last step in the process section of this report. The user-centered design that exists has been the clear documentation of the standard process of how to use the applications, Figure 4. Major resources are also invested in teaching users how to use the system, by classroom teaching and ongoing support (CS interviews, own observations). The one strong usability point for Prism is also a very important one: Prism has rapid response time, can be accessed with very slow communications, and it has high availability (Valdes et al., a), 2007). Some verifiable metrics of user-interaction exist and CS is starting some analyses of the results (CS manager interview).

Passive Systems

Some basic usability characteristics are: little user memorization, give feedback, prevent errors (Nielsen, 1993). Users have reason to expect that the main system they use supplies them with relevant data and functions in accordance with process requirements. Prism is a passive retainer of data without workflow functionality or alerts if input exceeds reasonable limits. Other systems used by CS also lack alerts and limit warnings. This increases the responsibility of CS to evaluate the overall coherence of data entered. Passivity, lack of steering workflow, can also be a creative possibility for the experienced user, to be able to handle a complicated order where basic data is lacking, in the order that is most reasonable for this specific case (CS interview).

Prism also requires code entries for all order fields and the end result is seen first when entry is finished and a printout is produced. Some dropdown descriptions are available, but these fields are so short that it is usually not practical to use these as built-in Help to understand the codes. This is another instance of “passive Prism” (CS interviews, own observations).

Standard systems, “one size fits none”

Prism has its built-in, implicit process, which has been developed for use by many different companies. An ordinary order with no problems requires the use of 5-6 screens, all of which are chosen by CS themselves, according to their

knowledge, documentation and their own judgement of the best process for each particular order. A disadvantage is that the screens have fields that are not relevant for Perstorp, but that cannot be removed. A usability characteristic is to carefully consider removal of unneeded content (Valdes et al., a) 2007).

The customer contact system CraMIS has been implemented to meet other departments' requirements, and some of that information is vital to CS and order entry completion. CS must log into CraMIS and access a part of the data to complete their own process, unless there are other complementary spreadsheets that have been extracted from the system (CS interviews, own observations).

A major challenge for CS is that they must check both incoming data from the customer and the quotation, as well as search in as many as 14 different sources for the correct information (figures 6 & 7) and assure that the total information for each order is correct, within a set time limit (CS interviews, own observations). The usability characteristics prevent errors, give feedback (Nielsen, 1993) are lacking here.

Data exists but must be handled manually

All orders entered by CS must be based on a valid quotation that contains both customer and Perstorp requirements. The data here is not automatically transferred to a current customer order, nor is the data from the order that the sales person has received from the customer. Direct incoming customer orders must also be entered manually, except those which are entered via the web-page available to some customers. Copy and paste can be used from the various sources to the fields in the different screens. Usability is low since there is no support for the purpose of creating a quotation (Valdes et al., b) 2007). The responsibility for doing this correctly resides with CS (CS interviews, own observations).

Process rules are not supported by systems

Same-day delivery orders may not be sent without Shipping's consent after a cut-off hour. If CS sends an order after the deadline and misses the call to Shipping, there is risk that the order will not be shipped even though it is confirmed. Both CS and Shipping create lists and check these several times a day to make sure that this does not happen. If the system refused to send orders after cut-off, and only allowed Shipping to retrieve orders, CS and Shipping could save time and tension each day. The usability characteristics prevent errors, give feedback (Nielsen, 1993) are lacking here as well.

Prices are both important and sensitive, and in the raw material market prices change more frequently than before. There is great care and effort put into getting the right price at the right time, but still some orders have to wait for their correct price. This can put pressure on CS as well as Shipping if the order requires rapid

delivery. Perstorp has just started an overall analysis of pricing in general, including all processes concerned with pricing (Perstorp intranet).

Batch entry, no visibility

Major amounts of data are required to fulfil customer, governance and Perstorp requirements for order and shipping fulfilment. Since the system does not track the most frequently used terms and conditions or allow storing a new or changed condition interactively, all updates to must be made in a separate session by CS at regular intervals.

Order entry is made into a screen with many fields, using codes. The actual result of the codes is seen first when the order acknowledgement is printed, in the easiest cases after 5-6 screens have been accessed (CS interviews). The usability characteristics little user memorization, give feedback, prevent errors, provide help and documentation (Nielsen, 1993) are lacking here as well.

5. Reflections and major findings (method in action)

5.1 The gaps in Customer Service support

Customer Service at Perstorp is the human translation factor of unstructured data: mail, phone, spreadsheets – as well as semi-structured data, in systems that are not designed to support CS' own processes. Added to this is the interaction and dependence on other internal departments.

The ERP system which is the main system used is passive with built-in implicit processes. It supplies Perstorp with the common database and transactions as it has been implemented. Replacing the ERP system alone would only disrupt CS, since they have learned to use their current system. True improvement for CS must supply them with the information that they need, in the structure that is useful to them, at the point when they need it in their process.

5.2 Feasibility of this method

This study has convinced me that the personnel at Perstorp are ready and eager to improve their working situation and their current process. The graphs have been received with enthusiasm and are now the tools of Customer Service. The positive response to this study makes it probable that other businesses or organizations can also use these methods and achieve relevant results with rapid feedback.

5.3 Recommendations

1. Focus on improving business processes and their interfaces, using new tools to address low-performing areas, without having to replace an entire suite of functions.
2. Design the business process from the customer viewpoint "make it easy to be a good customer".
3. Focus on functional handovers and integrations, smoothing the transition for the customer.
4. Align goals and rewards to the requirements of creating a customer-oriented process.
5. Improve current technology usage to address gaps as identified in the process analysis.

6. Method impact (method in action)

This section describes what happened after the case was finished and presented to the global Customer Service organization and to the ERP strategy group at Perstorp.

The Global Customer Service manager incorporated the findings from the case in their improvement project "Customer Service Excellence". The ERP strategy report used data for the CS section, without further analysis, having received feedback from CS confirming the findings.

A specific meeting was held concerning ERP strategy for Customer Service, since their situation and requirements were so clearly defined. The conclusions were that three major IS improvements must be delivered to CS within 2 years at the longest. These changes were described and demanded by CS themselves, to be delivered before a new ERP system but within the project boundaries.

CS now owns the process and its graphics and has adapted it themselves in order to service a new product line in a more efficient manner.

In short, CS is empowered by owning and managing its own process description, understandable to themselves and other departments, and external partners in their global work environment.

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