Cost reductions through standardization and automation at company X

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Abstract

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Competition in the field of IT is nowadays harder than ever. Companies are faced with fierce competition and customer satisfaction plays a crucial role. At the same time, costs are expected to be lower and improved efficiency is the ultimate goal. In order to increase their organization's efficiency, many companies aim to improve their internal processes by process standardization. At the same time, companies use IT automation and integrated tools more and more to deliver the required cost savings.

This study examines the effects of standardization and automation of processes in the field of IT and especially the cost savings achieved. The goal of the research is to verify the cost savings made in one department of an international IT and business process services company. The study aims to show the benefits of process standardization and provide the case company with important information relating to the effects of IT automation.

The thesis consists of a theory section and an empirical section that deals with the case company. The theory section focuses on managerial accounting and especially on costs, value engineering and lean thinking on the basis of relevant literature. The empirical part focuses on the characteristics of process standardization and automation relating to the actions made by the department of the case company.

The method used in the thesis is qualitative. The information was gathered by interviewing the case company's employees and managers, observing the employees as well as by studying the department's financial information.

The research shows that standardization and automation actions made by the department had a positive impact on the department's costs. The investigation reveals that the effects of process standardization and automation helped the organization to save time and reduce human errors. At the same time, the organization was able to achieve cost reductions and improve its efficiency. Standardization and automation of processes also had a positive effect on the quality of the work and the department was able to enhance its internal processes.

Keywords
Automation, standardization, value engineering, managerial accounting, lean thinking, value-stream mapping, cost reductions, quality, time savings

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1   Introduction

The thesis is commissioned by an international IT and business process services company. The company operates in 40 different countries and offers business and IT consulting, systems integration, application development and management as well as infrastructure services.

In 2014 one of the departments of the company started developing its operations in one customer contract by standardizing processes and creating task automation with the aim to increase the department's efficiency. The aim was to reduce manual effort and errors as well as to achieve savings both in time and costs. The thesis aims to verify those cost savings achieved by comparing the past and current state of the operations. At the same time previous cost structure of the department operations for this client contract is analyzed and compared with current cost structure. The results of possible cost savings will be further used by the company when planning project implementation also in other customer contracts.

1.1   Thesis background

Nowadays, competition in IT business environment is tougher than ever. Increased efficiency is required from operations and end-users must be kept satisfied with lower costs. These issues have put pressure on organizations to improve their internal processes. Standardization and automation of departments' core tasks are seen as methods of improving organizations internal procedures offering cost savings, increased customer satisfaction and improved competitiveness. (Turner 2010, 1.)

Aware of the importance of current requirements of efficiency and cost cutting in IT business, Lifecycle Management, one department of the case company, decided to implement several actions in process standardization and automation regarding one customer contract. The aim of the department was to increase the efficiency of its employees and reduce the amount of manual work and errors. The ultimate goal was to improve the service offered and at the same time have savings both in time and costs.

The end result of the research is to verify the cost savings achieved through standardization and automation by the company's department. The thesis aims to describe the actions taken during the standardization and automation process and at the same time give the company useful information on what kind of impacts of standardizing processes and automating tasks can have on departments' costs.

1.2 Thesis topic

The purpose of the research is to show what kind of effects process standardization and automation can have on an organization's operations and especially on costs. The main research question was formulated as follows: "What are the effects of standardization and automation to costs in Lifecycle Management at company X?"

The research question is further divided into four investigative questions:

IQ1: What are the main costs of Lifecycle Management?
IQ2: What can be standardized or automated at everyday work for Lifecycle Management?
IQ3: What are the effects of automation for Lifecycle Management?
IQ4: What are the effects of standardization for Lifecycle Management?

Overlay matrix (Table 1) demonstrates the connection between investigative questions, theory and results.

Table 1: Overlay matrix of investigative questions and data collection process

Investigative Questions (IQs)	Theoretical Framework	Method	Results
What are the main costs of Lifecycle Management?	1.6	Qualitative interview	4.3
What can be standardized or automated at everyday work for Lifecycle Management?	1.6, 2.3	Qualitative interview, participant observation	4.1, 4.2
What are the effects of automation for Lifecycle Management?	1.6, 2.2, 2.3	Financial data interpretation	4.1.1, 4.1.2, 5.1, 5.2, 5.3
What are the effects of standardization for Lifecycle Management?	1.6, 2.1, 2.3	Financial data interpretation	5.1, 5.2, 5.3

1.3 Demarcation

The focus of the thesis is the cost savings achieved by standardizing and using automation in one customer contract in one department of the case company. The goal is to calculate time and cost savings achieved by process standardization and IT automation. The

topic will only focus on one customer contract of one department of the company and will only use the data from that department.

The calculations of any possible program or device costs originating from the project are not included in the research because these costs are not allocated to the department itself but to the customer project. Since the costs of any possible software or hardware costs don't have an impact on department's costs, these calculations were excluded from the research.

This thesis focuses only on standard workstation and mobile phone delivery process. Workstation and mobile phone orders are the most common order types for this customer contract and are seen as the most important to be evaluated and improved. Device substitution projects done quarterly for the client contract are left out of the scope due the completely different ordering and deployment process. The focus was mutually agreed with the commissioned company and serves their needs very well.

1.4   International aspect

The case company operates in 40 different countries and is highly involved in international business. The case company has similar departments all over the world and possible benefits found in the research could be implemented in other countries as well. The department has recently started co-operation project on a Nordic level which aims to share information on team operations and unify the way of doing things. It is believed that the results of the thesis could be exploited in the Nordic project as well.

1.5   Anticipated benefits

Expected benefits for the case company can be enormous. The research aims to prove that standardization and automation of the organization's core tasks can have a huge effect on time and costs of the department. If the results show remarkable changes in the department's cost structure, similar process standardization and automation project could be implemented to other customer contracts of the department as well.

Through conducting the thesis, the author believes to have gained a deeper knowledge and experience of the way companies manage their departments and the influence of cost savings for organization's operations. At the same time the author was able to combine her every day work with her specialization studies giving her great career and learning opportunities. Networking with different departments of the case company is believed to have been beneficial and have improved author's future career development possibilities.

1.6   Key concepts

Managerial accounting aims to provide managers with information in order for them to plan, direct and control operations (Braun & Tietz 2013, 7).

In general **costs** can be classified as **direct** or **indirect**, depending on their relationship to the cost object (Braun & Tietz 2013, 53).

A cost object can be defined as any item or activity for which managers wish to have a separate measurement of cost (Braun & Tietz 2013, 53).

Direct costs can be traced to the cost object, whereas **indirect costs** relate to a cost object but they cannot be traced to it. (Braun & Tietz 2013, 53.)

Fixed costs are costs that remain constant in total over a wide range of activities (Braun & Tietz 2013, 68.)

Variable costs can be defined as costs that change in total in direct proportion to variations in volume (Braun & Tietz 2013, 68.)

Controllable costs are defined as costs that can be influenced or changed by the management (Braun & Tietz 2013, 66).

Uncontrollable costs are costs arising from previous decisions and cannot therefore be controlled by the management (Braun & Tietz 2013, 67).

Costs of quality can be defined as quality related costs that are incurred by the company. Braun & Tietz (2013, 209) categorize quality related costs into four different groups:

- **Prevention costs** occur when a company tries to prevent producing poor-quality services caused by for example complexity of the production process.
- **Appraisal costs** can be defined as costs that occur when detecting poor-quality services.
- **Internal failure costs** can be defined as costs incurred on defective units before delivery to customers.
- **External failure costs** occur because defective products are only discovered after delivery for the customer.

Value engineering aims to eliminate all the waste in the system by making the company's processes as effective and efficient as possible (Braun & Tietz 2013, 195).

Lean thinking can be seen as a management philosophy that focuses on creating value for the customer by eliminating waste (Braun & Tietz 2013, 202).

Value stream maps are used to identify and visually illustrate the flow of information, communication and sequence of activities and tasks. (Braun & Tietz 2013, 204).

Standardization occurs when all processes associated with the establishment of a service are completed according the same guidelines (Wipro 2013).

IT automation occurs when different systems and software are connected so that they become self-acting or self-regulating (Rouse 2015).

1.7   Risks and risk management

Common problem with theses relating to managerial accounting can be the lack of financial information available. The needed financial information either doesn't exist or the case company is reluctant of revealing the information to outsiders. This problem was tackled by having a clear and comprehensive agreement with the case company. The thesis author and the commissioned company had a mutual agreement on the thesis context and the information needed from the case company.

One of the risks during the thesis process was also the focus of the research. Since the thesis author works for the case company and is closely involved with the project relating to the methods of standardization and automation, the focus was set to be on the impacts of the actions to costs and quality of the department. This problem was tackled by having a clear thesis plan that demarcates clearly what will be included in the research.

1.8   Case company introduction

The case company is an international IT and business process services company. With total number of 68 000 employees in 40 different countries the company offers business and IT consulting, systems integration, application development and management and infrastructure services.

The thesis focuses on only one department of the company, Lifecycle Management, and specifically on one customer contract. Lifecycle Management is a part of End User Ser-

vices which operates under Infrastructure Management. The team consists of eight employees and this particular customer contract employs at the moment 1-2 people. As IT Coordinators their main tasks include order coordination, supply deliveries and installations management. IT Coordinators' everyday work consists of coordinating customer hardware and software orders as well as managing supply deliveries and onsite installations. Figure 1 demonstrates the basic process of device ordering and deployment for Lifecycle Management.
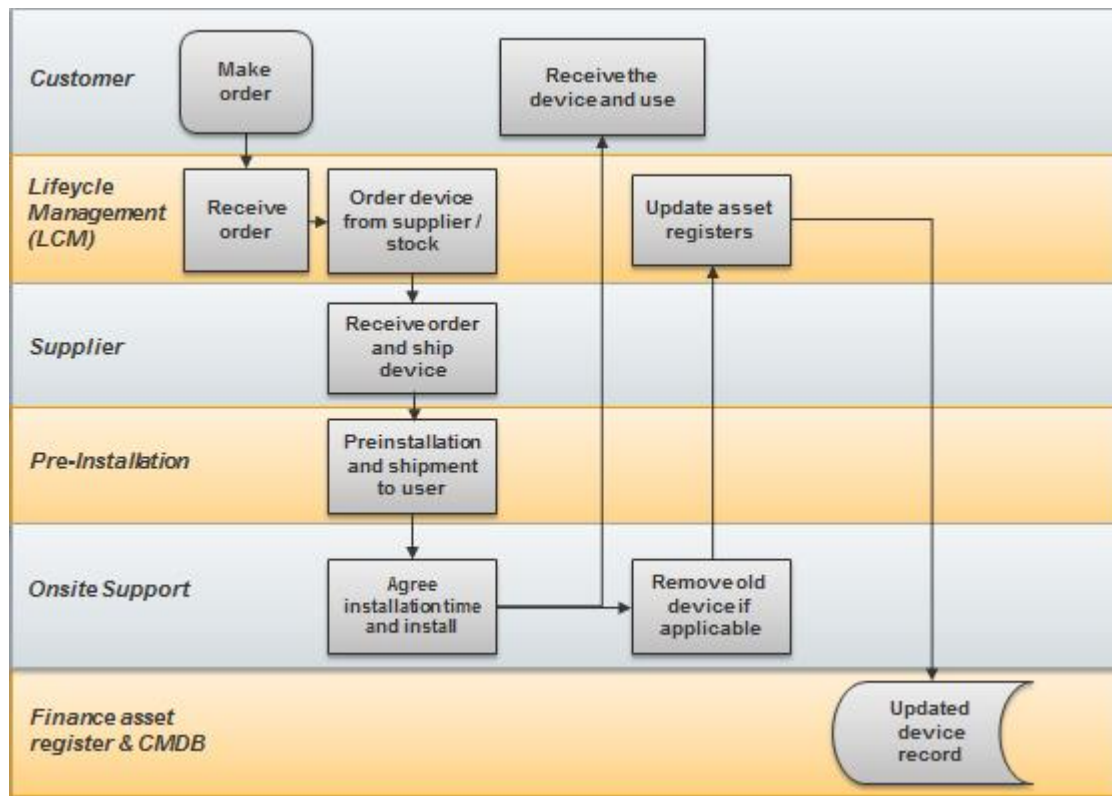
Figure 1. The basic process of device ordering and deployment for Lifecycle Management

The department currently utilizes multiple tools and manual processes to provide its customers with an end-to-end Lifecycle Management service. The current process for the particular customer contract used in the thesis is seen as time consuming, cumbersome and un-integrated, which can result in delays, added work effort and errors. To increase the efficiency and reduce manual effort and errors with hardware and device coordination, the department aims to standardize its processes and use IT automation to improve the provided service for the customer contract. (Nakari 9 December 2013.)

1.9   Terms and definitions

In order for the reader to have a better understanding of the research, the basic concepts used by the case company in its processes are briefly introduced below (Table 2).

CMDB	Configuration Management Database, case company's asset handling system where device information is maintained
Finance asset register	Finance asset register is a third party system where information is maintained by a client's financing partner. The financing partner is maintaining device lease information in this system
Buffer stock service	Buffering of the devices means that certain models are stored at the provider's Logistics Centre and devices are placed to client orders from the buffer stock. Size of the buffer stock is agreed with the client
Pre-Installation Center (PIC)	A place, where standard devices are labelled and installed with stand-ard Hardware installation package. Devices are packed for shipment
Onsite installa-tion	Onsite installation refers to the final installation done at the end user's workplace
Full time equivalent (FTE)	Indicates the hours worked by one employee. One FTE is equal to one employee working full-time
Service Level Agreement (SLA)	A negotiated agreement which describes a service offering and the contractual levels of service to be delivered to the client by the case company.

Table 2. Basic case company related concepts used in the research

2 Theoretical framework

This chapter discusses the literature relating to the research problem. The aim is to show the key concepts of the theory and their relationship to each other as well as to study closer the theoretical concepts connected to the research. Figure 2 summarizes the key theory concepts and their relations to each other.
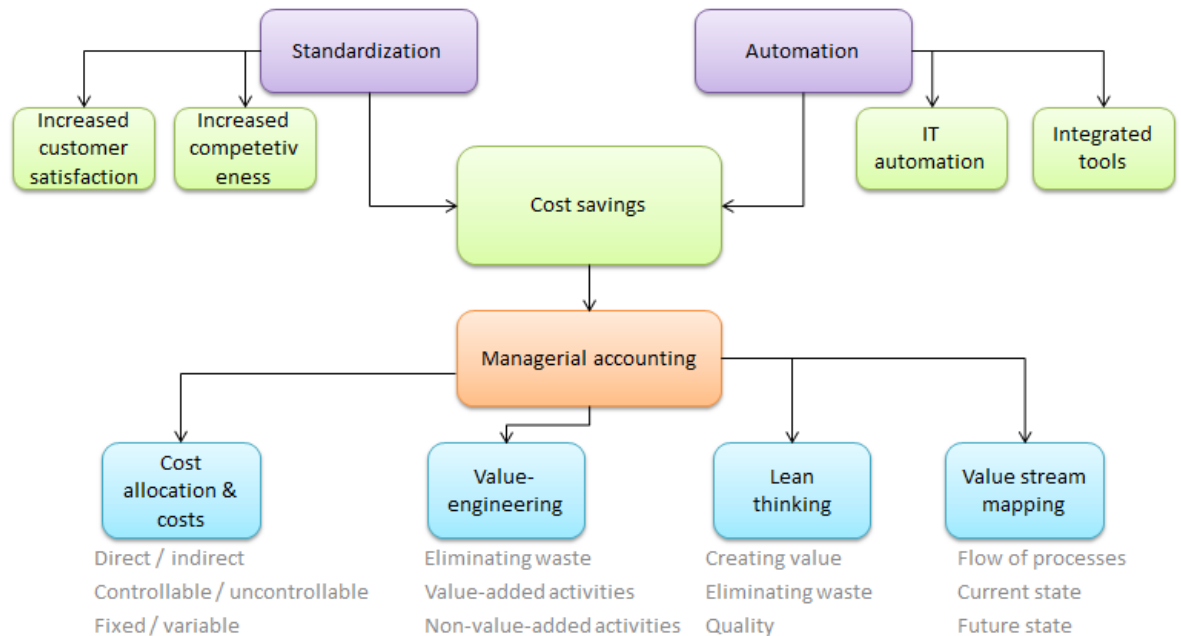
Figure 2. Key theory concepts used in the research

2.1 Standardization

Standardization is a good way for companies to improve their internal processes and usually results in increased efficiency and cost savings. At the same time, companies can achieve increased level of customer satisfaction as well as improved competitiveness. Standardization usually results in uniformity in organization procedures and can help to generate standard operating processes across different functions. (Wipro 2013.)

For the case company, standardization can be used when all the processes relating to order coordination are standardized, documented and instructed to be used by the employees. The standardization of processes related to order coordination and all the tasks associated with it, are believed to help the team to save time, simplify the work and in the end, save costs. At the same time manual errors in the process are believed to be reduced resulting in increased customer satisfaction and competiveness. (Einto 19 December 2014.)

2.2 IT automation

Automation and especially IT automation is generally related to efficiency and reduced costs (Rouse 2015). It is believed that standardized processes and workflows that are supported by automated and integrated tools can help companies to reduce costs and save time. At the basic level, automation can free employees from manually performing a particular action by allowing software to drive repeatable tasks. By clearly defining and standardizing processes, organizations can achieve more successful automation of complex workflows and end-to-end processes. The benefits of automation are believed to be significant especially when processes and workflows are well defined and executed against set standards. With the combination of automation and process standardization organizations can reduce errors and operational costs. (Turner 2010.)

Through IT automation the case company can use integrated tools that are believed to help the employees to manage the amount of manual work. By using IT automation, the team could reduce the time spent on each order, reduce the amount of errors and improve the overall quality of the order process. This is believed to have an impact on total costs of the department as well. (Nakari 9 December 2013.)

2.3 Value engineering and lean operations

Value engineering aims to eliminate all the waste in the system by making the company's processes as effective and efficient as possible. Usually value engineering includes elimination, reduction or simplification of non-value added activities. Non-value added activities, also known as waste activities, are activities that don't usually provide any competitive advantage or improve the customer's image of the service. Value-added activities can be identified as activities that bring value to the service and therefore help satisfy the customers' expectations. Figure 3 illustrates the goal of value-engineering. (Braun & Tietz 2013, 195.)

Enhance value-added activities

Remove or reduce non-value-added activities
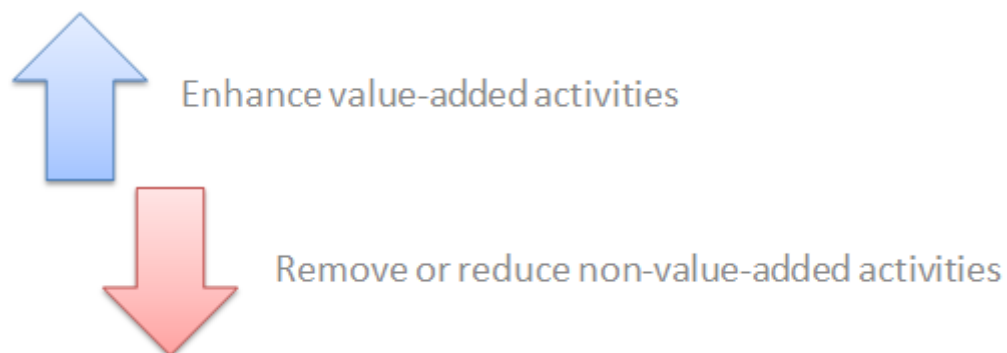
Figure 3. The goal of value-engineering (Braun & Tietz 2013, 195)

In the same way, lean operations can be used to eliminate waste and therefore to reduce costs. One of the key elements of lean thinking is employee empowerment at every level of the organization, which refers to the indication of how employees and their ideas should be used to make processes more efficient. Traditionally, there are eight different wastes that can be identified for most companies: defects, overproduction, waiting, not utilizing people to their full potential, transportation, inventory, movement and excess processing. In order to ensure employees' know-how when completing process steps, standardization tools such as checklists and step-by-step process flows are used commonly by lean companies. (Braun & Tietz 2013, 202-203 & 208.)

3 Research methods

The method used in the thesis is qualitative research. Qualitative research aims to understand the situation in-depth and is therefore more suitable method to be used in this research. Collection of primary data was used to support the qualitative research and the methods used in the research were semi-structured, including in-depth interviews and participant observation. The information was collected by interviewing the case company's employees and by observing their normal work day. Also team managers were interviewed and the department's financial information studied. The research design is illustrated in Figure 4.
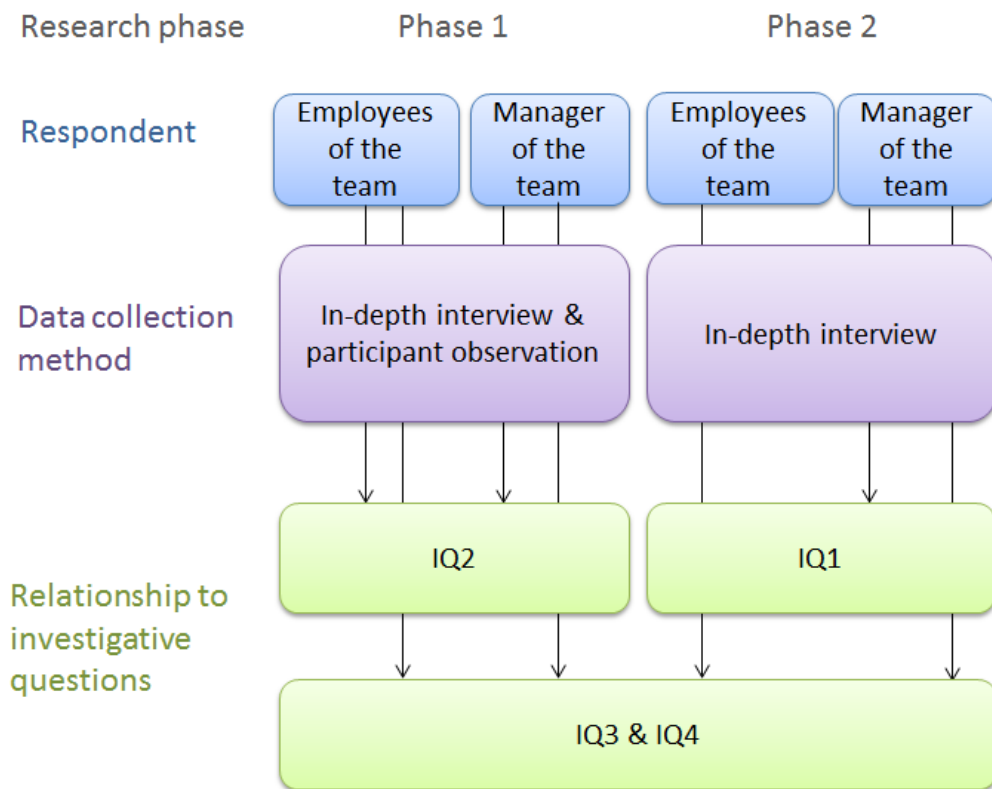
Figure 4. Research design

3.1 Interviews and participant observation as research methods

In order to get information both before and after the standardization and automation processes implemented, several interviews during December 2013 to November 2015 were conducted. Employees can be seen as a good source of information since they have the knowledge on their everyday work and they can give recommendations on how to improve the internal processes. In total two team managers and two employees were interviewed. Table 3 summarizes the interview times.

Interview date	Interviewee
9th of December 2013	Team manager at the time
13th of February 2014	IT Coordinator for the client contract at the time
23rd of April 2014	IT Coordinator for the client contract
19th of December 2014	Team manager
2nd of June 2015	Team manager
3rd of November 2015	IT Coordinator for the client contract

Table 3. Interview dates and the interviewees

All the interviews were conducted face-to-face. In 2013 and 2014 the aim of the interviews was to find out the current state of the processes as well as the possible waste areas recognized by both by the employees and the team manager. It was also important to have the manager's view on what could be improved in the processes and what were the biggest problem areas concerning the quality and the costs of the work. In 2015 the aim was to get the interviewees' insights about the state of the operations after the automation and standardization actions had been taken.

Participant observation was only used in the beginning of the project in February and April 2014 after the face-to-face interviews. The aim of the observation was to follow employees' normal work day and better see what tasks could be recognized as possible non-value-added activities. Participant observation was done for two employees in total. Observation was done only for two people because of the personnel changes in the team and therefore only two people were believed to have the sufficient know-how of completing the tasks in the demanded level. During the participant observation, time spent for each task in workstation and mobile phone ordering process was also recorded (Appendices 1 and 2).

Some financial figures, both before and after the project, were used to analyze the results and see the possible effects on costs. The manager's needs were also closely considered in order to align the work with manager objectives.

3.2 Reliability and validity

The validity of the research was increased by using member checks where informant check is used on research results. A specific plan on what to include was implemented and the work was aligned all the time with the team manager's objectives. At the same the theoretical framework was considered as well (Figure 5).
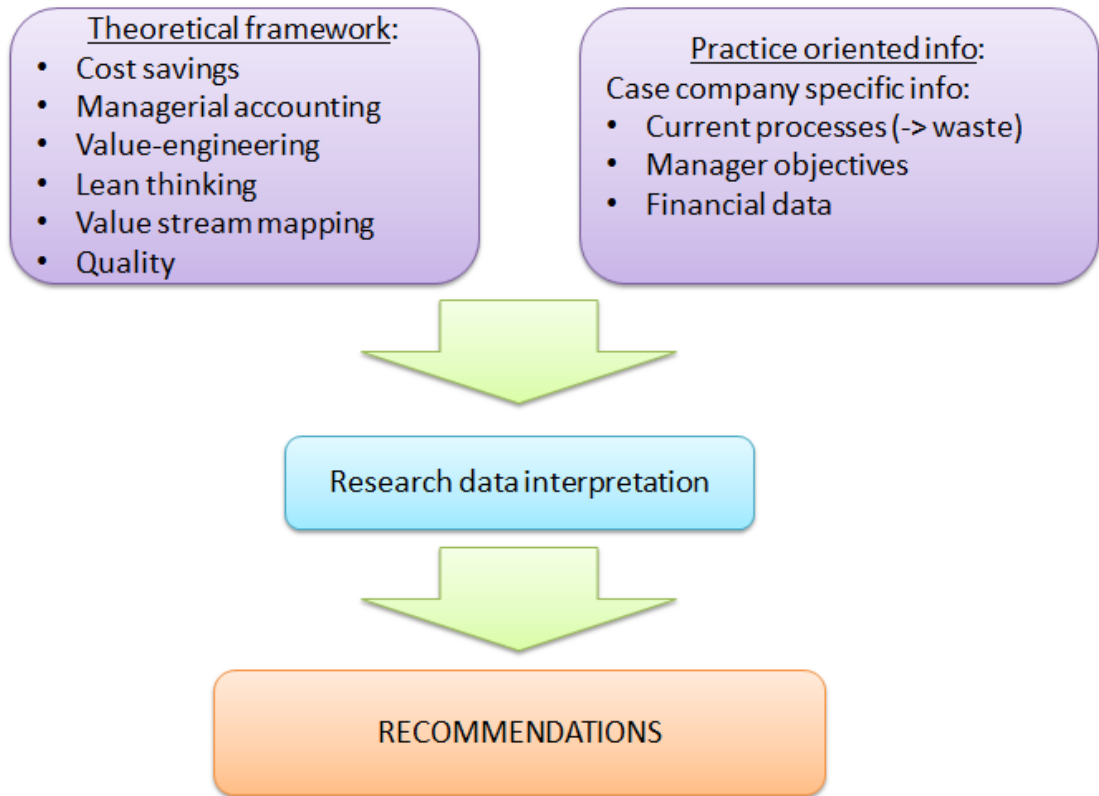
Figure 5. Aligning theory and practise

4 Standardization and IT automation at the case company

As a result of the face-to-face interviews both with the employees and team managers as well as by observing the employees, several problem areas could be recognized (Table 4). Also possible solutions were gathered based on the information received from the interviewees.

Problem area	Possible solution
Several manual tasks involved in the process	Automated tasks
Several tasks depend on employee's memory	Automated tasks
Not enough income is generated from the customer contract when compared to the workload	IT Automation and standardized processes
Data is not accurate in Asset registers	Standardized processes
Instructions are poorly documented and there is no accurate work flow	Standardized instructions and processes
There is not enough knowledge among the team members	Standardized processes and training
Possibilities for errors are high	IT Automation and standardized processes
SLAs (Service Level Agreements) are not met	IT Automation and standardized processes

Table 4. Problems areas and possible solutions recognized by the employees and managers of the case company

In December 2013 the case company started a project to create IT Service Portal that would enable the possibilities for automated tasks and integrated tools. At this point Lifecycle Management team was not yet involved in the project but it was believed to be implemented for the client contract in the future. The involvement of Lifecycle Management team started in April 2014 motivated by the renewed client contract that changed the processes of workstation and mobile phone ordering and deployment.

Figure 6 illustrates the time line for the department's standardization and IT automation project.
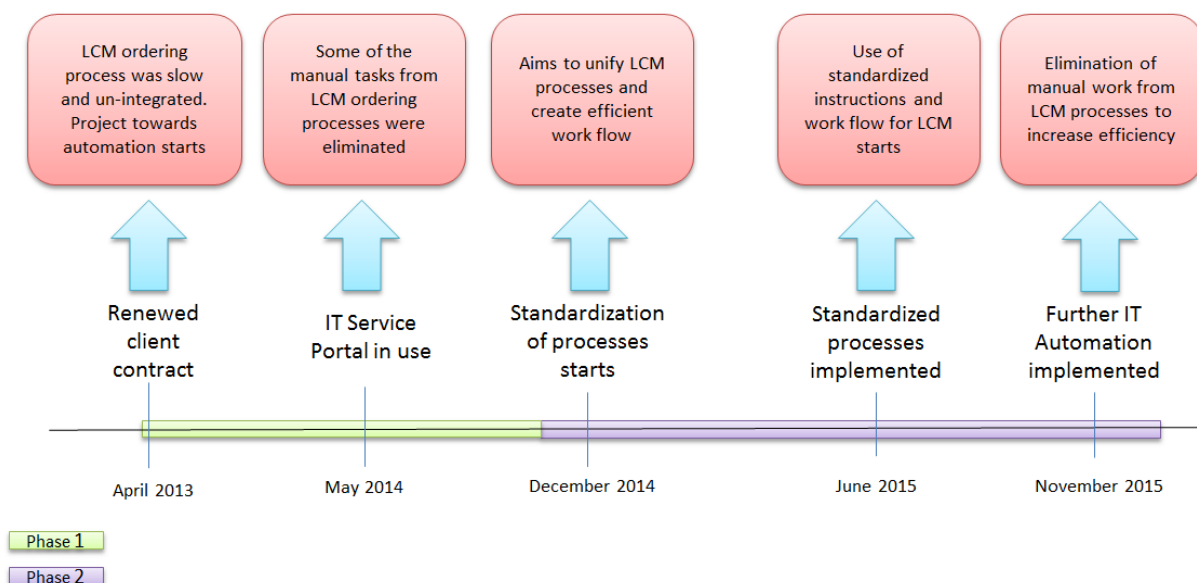
Figure 6. Timeline for IT Automation and standardization project of the Lifecycle Management team

In order to improve the department's internal processes, standardization of processes was started after the first automation implementations. The main objectives were to have unified procedures and efficient work flow for both device and mobile phone ordering processes. The standardization of processes was seen as a necessary step to improve the quality of the work as well as to make sure errors were made as little as possible. (Einto 19 December 2014.)

4.1   Steps towards IT automation

In the early stages of the project in April 2014, the workstation process was time consuming and involved several manual tasks. Based on the information received through employee interviews and participant observation (Vahter 13 February 2014 & Hednäs 23 April 2014), value stream mapping was used to identify waste areas in the workstation ordering process (Figure 7).
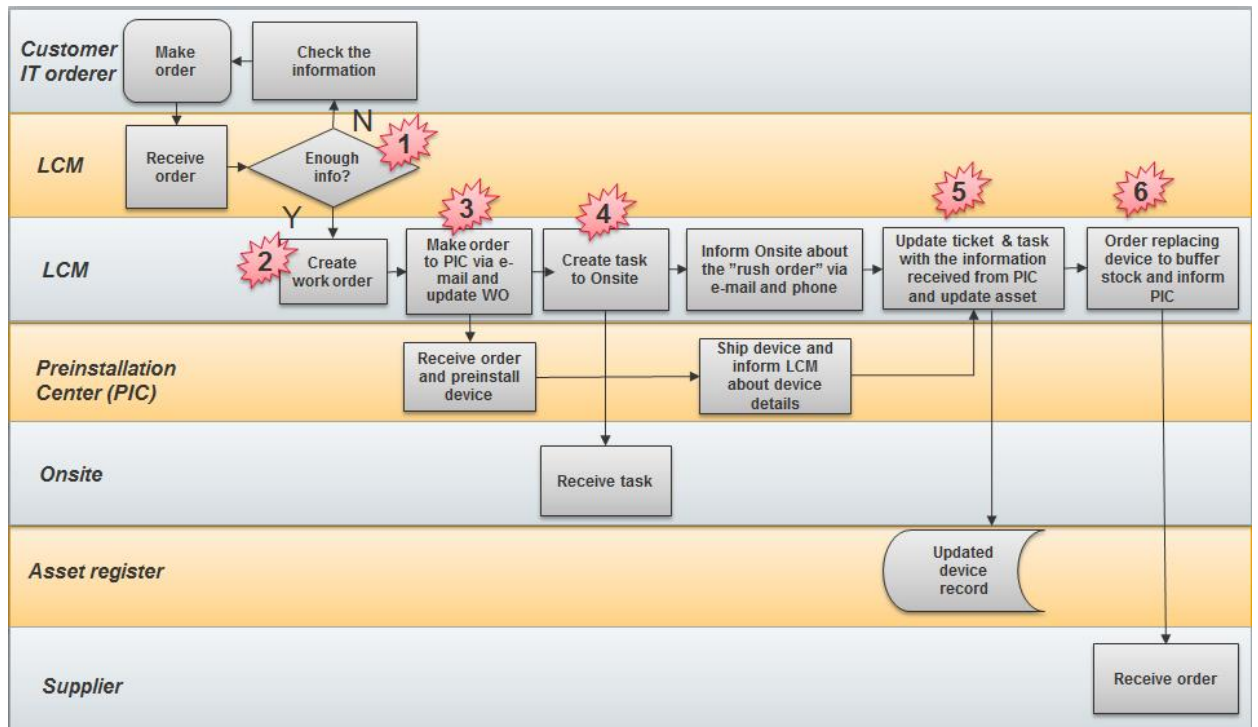
Figure 7. Workstation ordering process in April 2014

The waste areas are further explained below:

1. Order needs to be manually checked by the Lifecycle Management team for possible missing information that would be needed to proceed with the order. This waste can be recognized as excess processing and causes additional steps because of the shortfalls in earlier steps (Braun & Tietz 2013, 204).
2. Lifecycle Management team has to create the work order manually into the ticketing system in order to proceed with the order.
3. The team uses e-mail to forward the order to Pre-installation Centre.
4. The team creates a manual task in the ticketing system to Onsite Support for hardware installation.
5. Waste number 5 refers to both waiting and manual work since Lifecycle Management team waits for a Pre-installation confirmation to be sent via e-mail and then updates the work order with the information received.
6. Waste number 6 refers to the manual work done by Lifecycle management team when replacing hardware needs to be ordered to buffer stock from the supplier.

Possible solutions to eliminate the waste are further explained below:

1. Waste could be eliminated by using a web based form that has "must fill" fields and the form couldn't be sent unless it's filled in correctly.

2. Waste could be eliminated by IT automation where a work order is created automatically based on a customer's order.
3. Waste could be eliminated by IT automation and by having automatically assigned tasks to Pre-installation Centre.
4. Waste could be eliminated by IT automation and by having automatically assigned tasks to Onsite Support.
5. The waste could be eliminated by Pre-installation Centre having its own task in the work queue where Pre-installation confirmation could be added to.
6. Waste could be eliminated by IT automation where integration between Lifecycle Management ticketing system and supplier would exist.

Value stream mapping was also used in device deployment process and waste areas were identified and numbered (Figure 8).
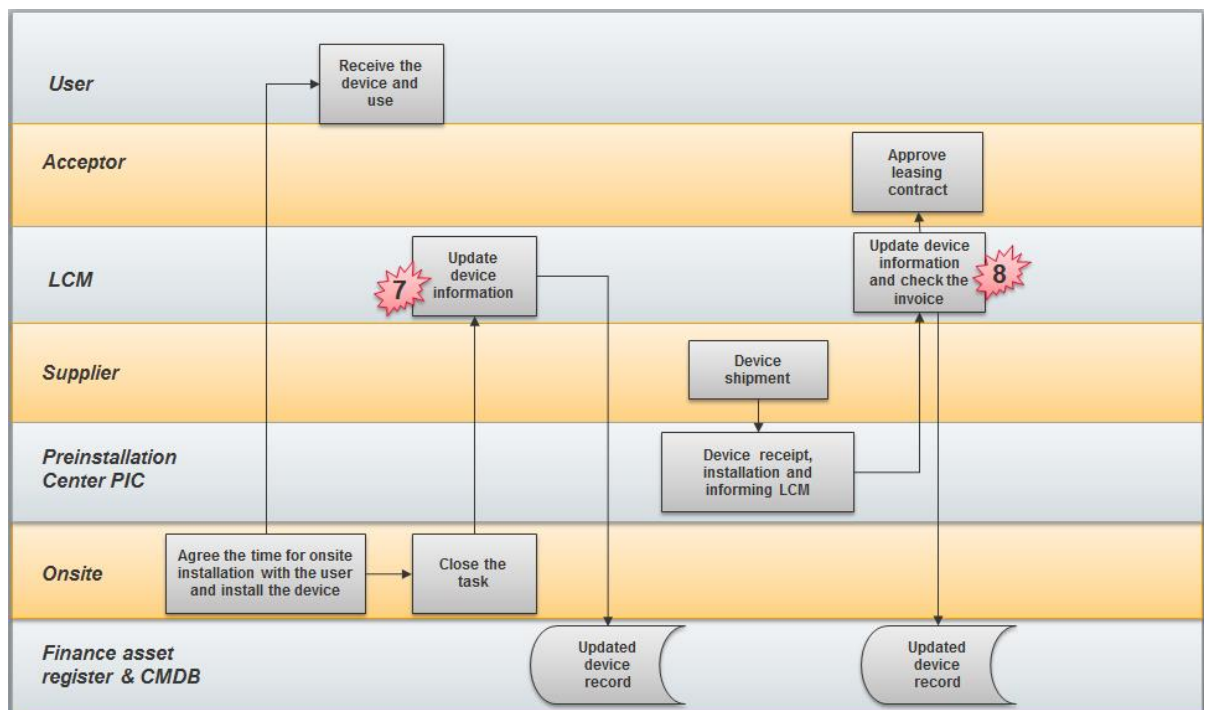
Figure 8. Workstation deployment process in April 2014

7. Information about the task closure doesn't automatically reach the team but instead order needs to be manually monitored with the help of an Excel sheet. Waste could be eliminated by IT automation with a separate task for Lifecycle Management for device information update.
8. Lifecycle Management team updates the device information to Asset registers. Waste could be eliminated by IT automation where device information is automatically updated in CMDB when device is preinstalled.

Similar problems and waste areas were also identified in the mobile phone ordering process (Figure 9).
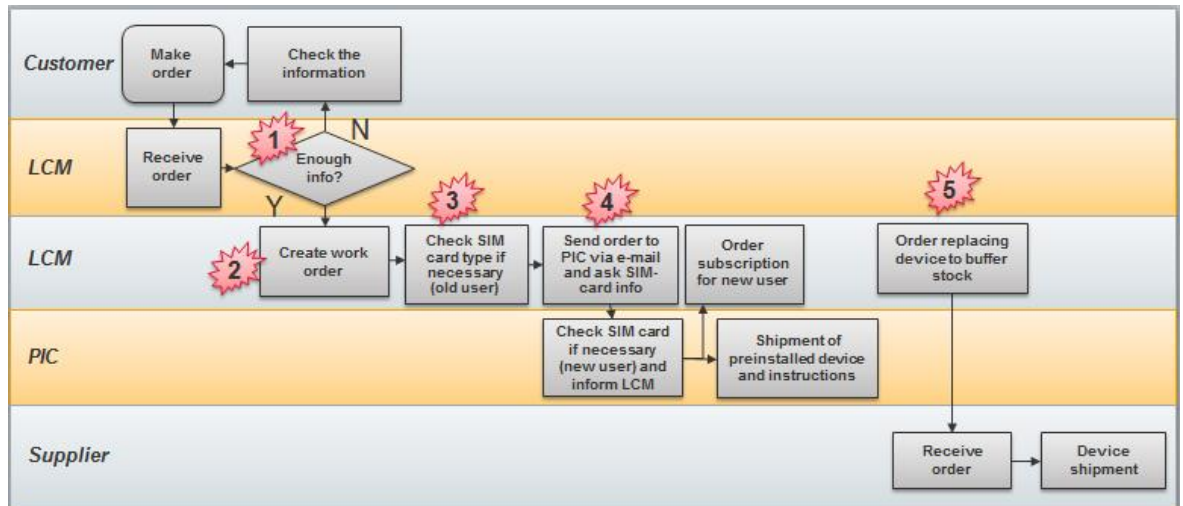
Figure 9. Mobile phone ordering process in April 2014

The waste areas are further explained below:

1. Waste number 1 refers to excess processing where Lifecycle Management team checks the order manually.
2. Waste number 2 refers to the manual work where Lifecycle Management team creates the work order in the ticketing system.
3. Waste number 3 refers to the manual work where Lifecycle Management team has to check the SIM card type if the order is for an existing user.
4. The team uses e-mail to pass on the order to Pre-installation.
5. Waste number 5 refers to the manual work done by Lifecycle management team when replacing hardware needs to be ordered to buffer stock from the supplier.

Value stream mapping was also used in the mobile device deployment process and waste areas were identified and numbered (Figure 10).
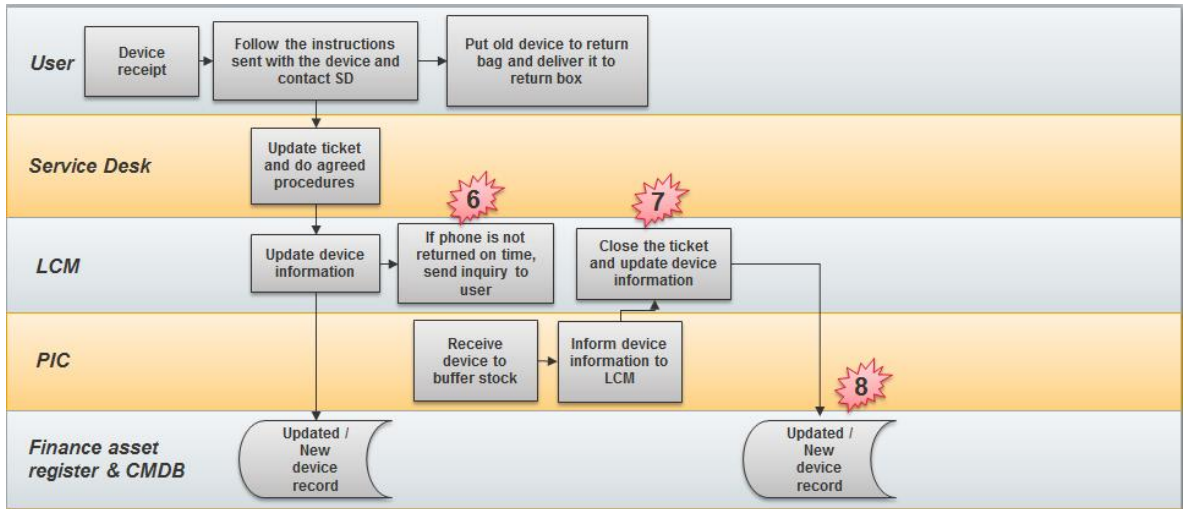
Figure 10. Mobile phone deployment process in April 2014

6. Waste number 6 refers to manual work done by the Lifecycle Management team where LCM needs to make sure that the old phone is returned by the user. Waste could be eliminated with an automated task assigned to Onsite regarding the phone return.

7. LCM manually closes the ticket when new SIM card is activated and the old phone is returned. Waste could be eliminated by having automated tasks and work order would close automatically when all the tasks are completed.

8. Lifecycle Management team updates the device information to Asset registers. Waste could be eliminated by IT automation where device information is automatically updated in CMDB when device is preinstalled.

4.1.1 Actions taken to eliminate waste – phase one

During the first phase the most crucial areas of waste were identified and addressed. IT automation was seen as a solution to eliminate time consuming manual tasks. The opportunity for IT automation was found through the new contract with the client that would enable the use of IT Service Portal. IT Service Portal is a browser based service that can be used by the customers for hardware and software orders as well for general requests to Service Desk. IT Service Portal generates a work order in the case company's ticketing system automatically based on the request of the customer (Figure 11).
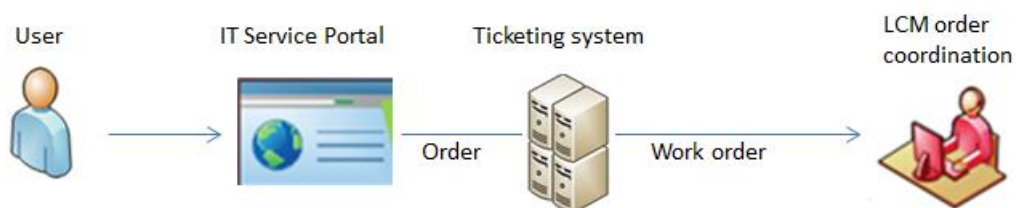
Figure 11. Order flow via IT Service Portal

Waste areas 1 and 2 were eliminated with web based IT Service Portal which enabled the possibility of a web based order form and automated ticket creation. After phase one in June 2014, the first two identified waste areas were eliminated from the workstation ordering process (Figure 12) and from the mobile phone ordering process (Figure 13).
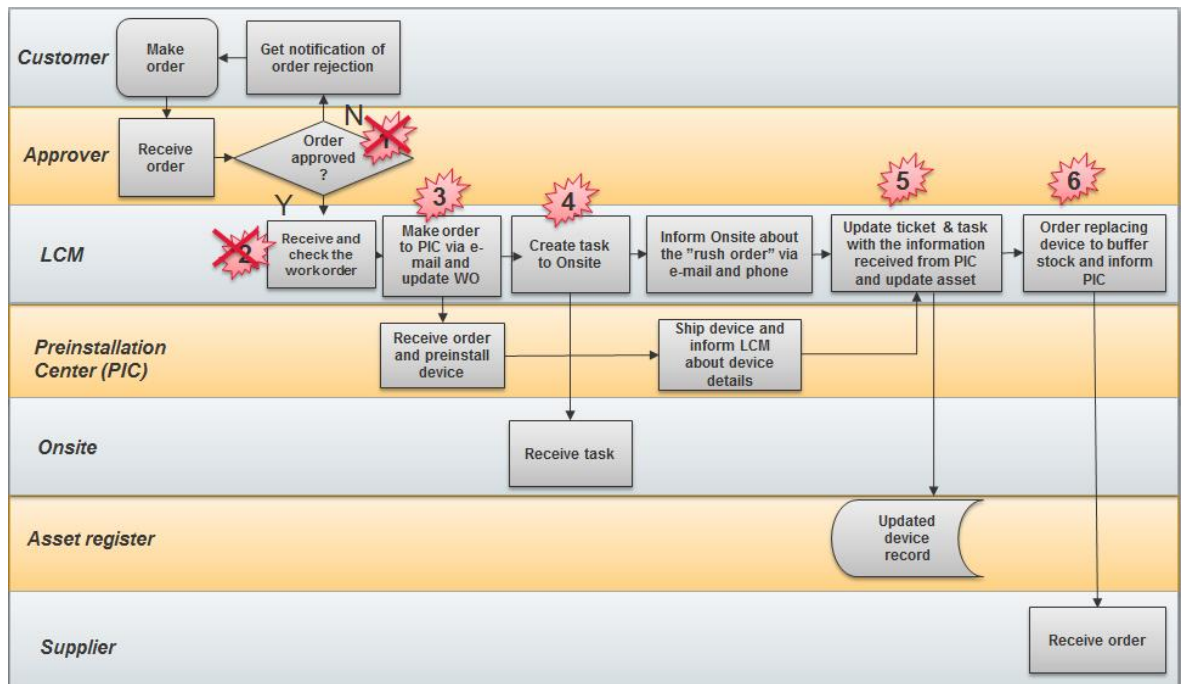
Figure 12. Workstation ordering process after phase one in June 2014
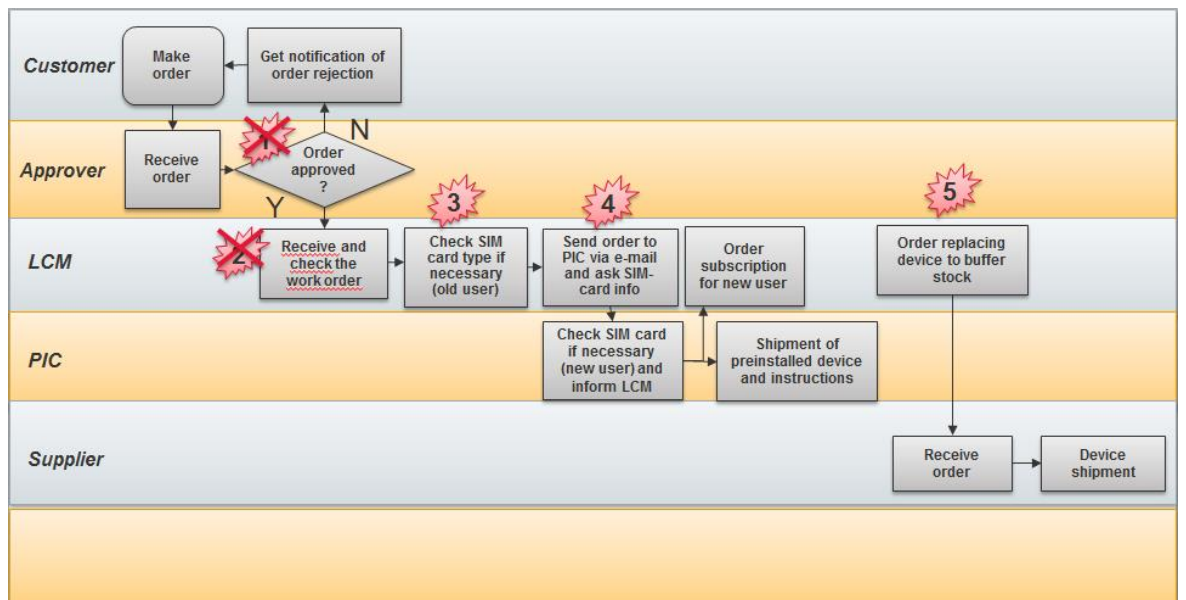
Figure 13. Mobile phone ordering process after phase one in June 2014

At the same time IT Service Portal enabled increased visibility by customers being able to follow the process of their orders through IT Service Portal. The Portal also gave customers new ways of contacting in addition to old contact channels of e-mail and phone. One

of the aims of the case company was to decrease the number of contacts to the other end user team (Service Desk) made by the customer via e-mail or phone.

The project continued by investigating the options of using automated tasks even more widely and having integrations between partners and suppliers.

4.1.2 Actions taken to eliminate waste – phase two

In the beginning of phase two the planning of future IT automation possibilities for both workstation and mobile phone ordering processes started. The identified waste areas were the focus point. Also the time spent for each task (Appendices 1 and 2) was used as a base to decide which tasks would be the most crucial to be automated. However, technical limitations and the suitableness of task automation for other customer contracts had to be considered as well. The overall aim was to make the order processes as fluent as possible and have savings in time spent for each order.

After the planning process, the following automation procedures were decided to be implemented:

- Pre-Installation Centre integration
- New work order templates
- Use of work orders with multiple sequenced tasks

These areas were considered to have a big impact on reducing the manual work of Lifecycle Management team and make the ordering process of workstations and mobile phones leaner. Pre-Installation integration would enable automated tasks and Lifecycle Management team would no longer have to forward orders to Pre-Installation Centre via e-mail.

New ticket templates with automated tasks would decrease the time spent on ticket handling and have a positive impact on the quality of the work. In practise, automated tasks mean that every work order has several tasks of which each is assigned to the designated production team. All the tasks are sequenced, meaning that after the previous task is completed the next task would be automatically assigned forward to the next team. After the last task is closed the whole work order closes.

The IT Automation procedures are planned to go on production during November 2015. Because of this, there are not yet real results of the impact of the changes. However, it is

estimated that the changes will further reduce waste from Lifecycle Management work-station and mobile phone processes. With the automation implementation, total number of waste would reduce from the 6 to 4 in workstation ordering and deployment process (Figure 14).
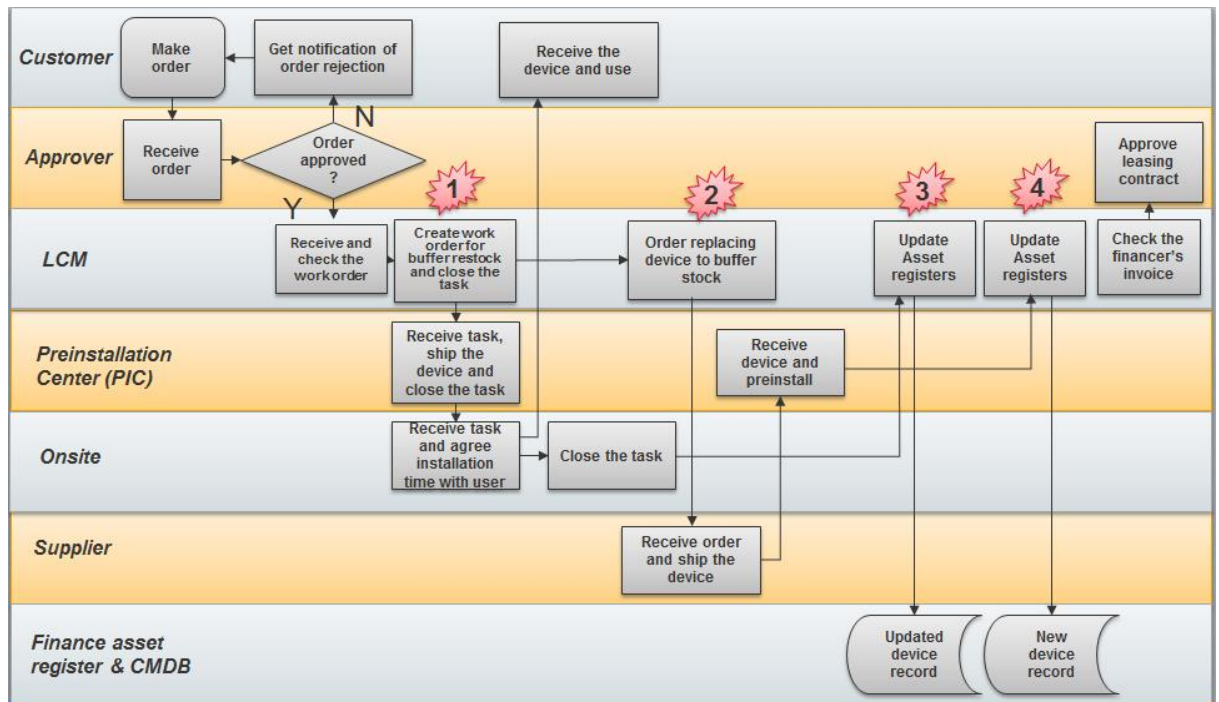
Figure 14. Workstation ordering and deployment process after phase two

In the same way, number of waste would reduce from 6 to 4 in mobile phone ordering and deployment process (Figure 15).
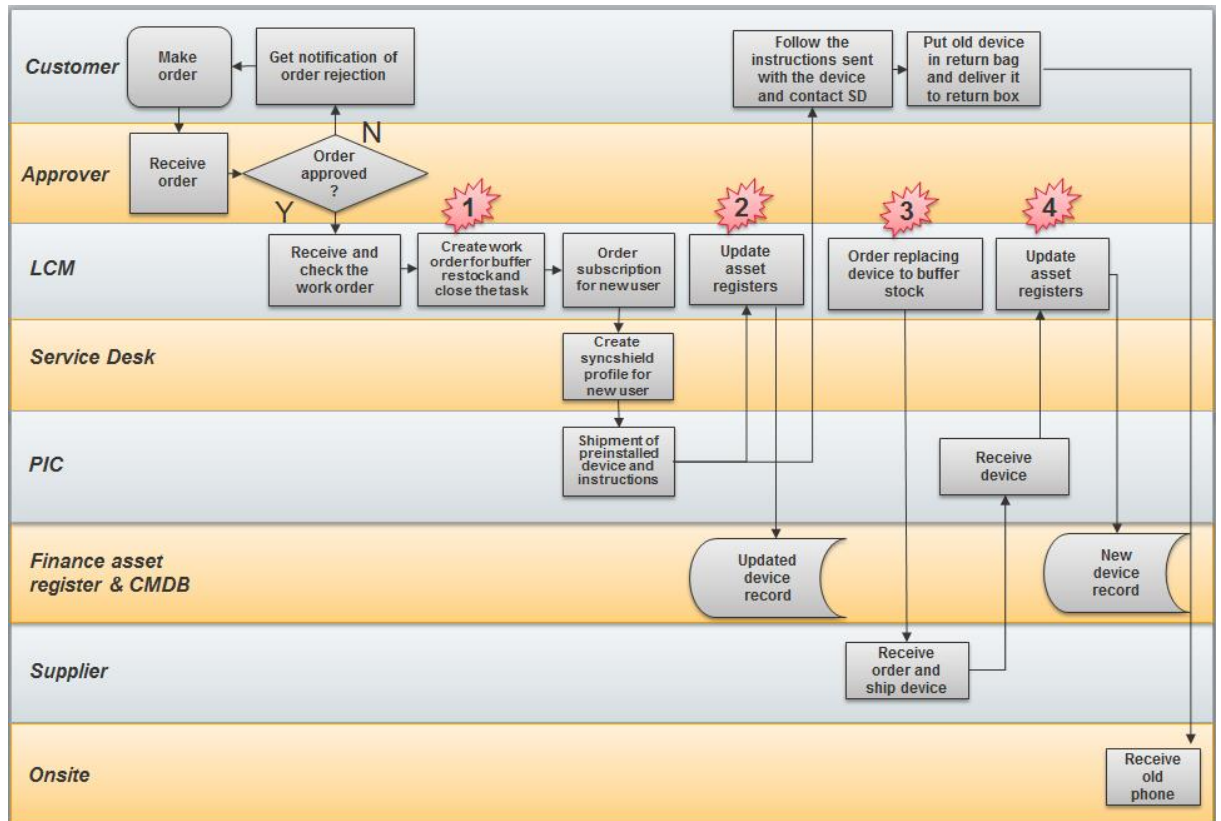
Figure 15. Mobile phone ordering and deployment process after phase two

The use of automated tasks is also believed to reduce errors since each needed task will be automatically assigned to a production team.

4.2   Steps towards standardization

The process of standardizing Lifecycle Management processes to better serve both the customer contract as well as the team itself started in December 2014. Since the renewal of the customer contract, there was no clearly defined work flow or instructions for the employees. At the same time, tasks were taking too much time to perform and the quality of the work was not at the desired level. The goal of the standardization was to create a consistent order process flow in order to ease the work of the IT coordinators. (Einto 19 December 2014).

As Fish points out (13, 2012) the risk of failures can be reduced by simplicity; organizations should use methods that make the tasks easier to perform. Tasks should have clearly defined scope and structure making it easier for people to know what to do and when to do it. By clearly structured processes, companies can affect their financial outcomes like: profit, customer lifetime value, revenue, losses and cost relative to expected outcome. (Fish 2012, 10-11).

Business process management (BPM) can be defined as an activity where business processes are designed and implemented in a way to maximize their value to the organization. Business process can be seen as a set of activities that are interrelated and performed by an organization to achieve its objectives. These activities can be performed by employees, technologies or the combination of them both. (Fish 2012, 16.)

Standardizing instructions and processes were the first steps in the standardization project for the department of the case company. As instructions were poorly documented, creating clear instructions for the employees that would help them to avoid errors and have a clear structure in the work flow was emphasized. At the same time, a special new hire package was created that would enable new employees to absorb the needed information in a more efficient way.

In order to better meet the customer specific Service Level Agreements (SLAs), emphasis was directed towards following the specific work flow. At the same time, coordinators were instructed to pay special attention to ticket handling. IT Automation procedures were anticipated to help with the ticket handling but until the implementations were in production, process standardization was used to prevent errors in work order coordination.

During the standardization project, several actions were taken in order to improve the Asset register data for workstations and mobile phone devices. These actions included:

- Clear procedures for removed devices outside the customer's main locations
- Unifying CMDB data entries and updates
- New procedures for maintenance requests
- Separate Asset register form filled out by Onsite Support

One of the problems identified during the team manager interview was the fact, how the customer contract doesn't generate enough income compared to the workload it requires. As a solution, the instructions on when and how to invoice separately billable tasks from the customer were created and implemented among the employees. At the same time specific instructions for the employees were given on how to recognize the billable work.

Some of the actions taken to achieve the standardized procedures increased the work load of the employees. However, it was believed that the benefits achieved by these actions would have significant impacts on quality and future operations of the department.

4.3 Costs of the Lifecycle Management team

As for so many other service companies, also for Lifecycle Management team salaries and benefits make up for most of its costs. In general each client contract includes costs of personnel as well as the third party vendor costs. For this particular client contract costs are divided between personnel and Pre-Installation Centre costs.

Personnel costs depend on the amount of hours spent on the work each month. These costs are therefore variable and they change in direct proportion to changes in working hours. The personnel costs can be recognized as controllable costs since they can be influenced by the management. Personnel costs used in the research were received from the team manager and an average salary was used in the calculations.

There are some seasonal variations in the personnel costs. For this particular client contract July can be considered as a "holiday month" when there is decreased number of orders coming in. The employee hours spent in device substitution orders were excluded from the calculations because the process of device substitution was not included in the research.

Pre-Installation Centre costs are also variable and change in direct proportion to changes in orders coming in each month. Since these costs cannot be controlled by the management, they can be identified as uncontrollable costs. The Pre-Installation Centre costs relating to device substitutions were excluded from the calculations because the process of device substitution was not included in the research.

Pre-Installation Centre costs are not affected by any changes made in Lifecycle Management processes, including the standardization and automation project. However, these costs are included in the calculations of total costs in order to see the effect of standardization and automation for this particular customer contract. It has to be noted though, that since the costs relate directly to amount of orders coming in, the changes in order amounts are affecting the results as well.

5 Results

During the standardization and automation project, value engineering and the principles of lean operations were used to identify the areas of waste for the workstation and mobile phone processes of the case company. With the information received by interviewing employees and managers, areas of waste were pointed out and identified with the use of value stream maps. Waste was first identified by using the beginning state value stream maps. Also a future state value stream map was prepared with waste removed and processes improved.

The waste areas identified in the case company's operations are further explained below (Braun & Tietz 2013, 202.):

- The term **defects** is used when the company produces products or services that are defective and therefore cost time and money as well as resources.
- **Waiting** refers to the wasted time when employees need to wait for example information or machine repairs before being able to continue with their task.
- **Excess processing** occurs when the process includes extra production steps or features that are not essential for the customer.

These can be recognized as quality costs that are occurring because of the complexity in the processes.

In order to understand the impact of standardization and automation to the department's operations overall, the effects were analyzed in three different areas: costs, time savings and quality. At the same time, automation and standardization were considered as separate processes each having its own impact on the areas mentioned above.

5.1 Impact on costs

By reducing the identified non-value added activities, the process of workstation and mobile phone ordering became simpler and more efficient. In order to see the effects on costs, the department's financial data from time period April 2014 to October 2015 was analyzed.

To better see the direct impact of standardization and automation of processes on the department's costs, only the personnel costs of this client contract were analyzed first. The project itself lasted longer than expected because of the technical challenges during

automation implementations. Because of the long duration of the project, costs were calculated for each month from April 2014 until October 2015. This gave the author the opportunity to see the impact of changes on costs in a longer period of time and and at the same time to analyze the possible fluctuations. The costs of each month were compared to the costs in April 2014 in order to better see the changes in costs. April 2014 was used as a base figure because the new client contract came into effect in the beginning of this month. Figure 16 summarizes the personnel costs during April 2014 until October 2015.

	FTE	Personnel costs	% change to April 2014
April 2014	1,6	7 480,00 €	
May 2014	1,6	7 480,00 €	0,0 %
June 2014	1,6	7 480,00 €	0,0 %
July 2014	1,2	5 610,00 €	-25,0 %
August 2014	1,6	7 480,00 €	0,0 %
September 2014	1,6	7 480,00 €	0,0 %
October 2014	1,6	7 480,00 €	0,0 %
November 2014	1,6	7 480,00 €	0,0 %
December 2014	1,6	7 480,00 €	0,0 %
January 2015	1,7	7 947,50 €	6,3 %
February 2015	1,7	7 947,50 €	6,3 %
March 2015	1,7	7 947,50 €	6,3 %
April 2015	1,7	7 947,50 €	6,3 %
May 2015	1,7	7 947,50 €	6,3 %
June 2015	1,6	7 480,00 €	0,0 %
July 2015	1,2	5 610,00 €	-25,0 %
August 2015	1,5	7 012,50 €	-6,3 %
September 2015	1,4	6 545,00 €	-12,5 %
October 2015	1,3	6 077,50 €	-18,8 %

Figure 16. Personnel costs for the client contract from April 2014 to October 2015

The first automation implementations done in May 2014 didn't have any impact on costs. The figures in July 2014 and July 2015 can be recognized as seasonal changes when the order amount decreases causing the costs to be 25% lower than usually. For this client contract July is a normal holiday month and most of the customers that would usually make orders, are on holiday. For this reason, order amount in July is always remarkably lower than during other months.

The actions towards creating standardized processes were mainly focused on time period from January 2015 until May 2015. For this reason, the costs for this period of time are higher and could be characterized as prevention costs. Additional costs occurred because the department tried to prevent producing poor quality services by improving its internal processes.

In August 2015 the costs of the department started to decrease. By that time all the instructions were standardized and the work flow was well structured which can be seen impacting the costs as well.

As already mentioned in the previous chapter, Pre-Installation Centre costs are only impacted by the number of orders coming in and are therefore not affected by any improvements made in Lifecycle Management processes. However, in order to see the impact of standardization and automation to department's overall costs, the personnel costs and Pre-Installation costs were also analyzed together. Figure 17 summarizes the total costs of the department for this client contract during April 2014 to October 2015.

	Pre-Installation costs	TOTAL COSTS	% change to April 2014
April 2014	570,60 €	8 050,60 €	
May 2014	570,60 €	8 050,60 €	0,0 %
June 2014	570,60 €	8 050,60 €	0,0 %
July 2014	322,50 €	5 932,50 €	-26,3 %
August 2014	570,60 €	8 050,60 €	0,0 %
September 2014	570,60 €	8 050,60 €	0,0 %
October 2014	570,60 €	8 050,60 €	0,0 %
November 2014	570,60 €	8 050,60 €	0,0 %
December 2014	570,60 €	8 050,60 €	0,0 %
January 2015	263,00 €	8 210,50 €	2,0 %
February 2015	420,00 €	8 367,50 €	3,9 %
March 2015	70,00 €	8 017,50 €	-0,4 %
April 2015	481,50 €	8 429,00 €	4,7 %
May 2015	495,00 €	8 442,50 €	4,9 %
June 2015	814,00 €	8 294,00 €	3,0 %
July 2015	322,50 €	5 932,50 €	-26,3 %
August 2015	772,50 €	7 785,00 €	-3,3 %
September 2015	987,00 €	7 532,00 €	-6,4 %
October 2015	1 080,50 €	7 158,00 €	-11,1 %

Figure 17. All costs of the department for the client contract from April 2014 to October 2015

In overall the cost structure is quite similar compared to the personnel costs. Decreased costs can be identified in July 2014 and July 2015 caused by the seasonal fluctuations. In the same way as when only looking at the department's personnel costs, increased costs can be identified from January 2015 until May 2015, March 2015 being the exception. However, decreased costs during March 2015 can be explained by the low Pre-Installation costs. Also decreased costs after July 2015 can be recognized.

Because the phase two automation implementations are not yet in production, there is no financial data yet available to prove any costs reductions caused by the improvements

made. However, there are clear implications that automation will have an effect on the department's costs and some estimates were made to see the impact of IT automations to the department's costs (Figure 18).

	FTE	Personnel costs	% change to April 2014
November 2015 (estimate)	1,3	6 077,50 €	-18,8 %
December 2015 (estimate)	1,2	5 610,00 €	-25,0 %
January 2016 (estimate)	1,1	5 142,50 €	-31,3 %
February 2016 (estimate)	1	4 675,00 €	-37,5 %
March 2016 (esimate)	1	4 675,00 €	-37,5 %

Figure 18. The department's estimated personnel costs for the client contract from November 2015 to March 2016.

The costs are estimates that are calculated based on the information from future state value stream maps as well as the estimations of time spent on each task after automation implementations. It is believed that the costs will decrease gradually because the new automation implementations will take time for the employees to adjust to. After a while the costs will reach a steady level that will give the case company a good base to continue the planned improvements.

5.2 Impact on time

In April 2014, Lifecycle Management processes were time consuming and involved numerous manual tasks. By using the lean thinking principles many non-value added activities were planned to be eliminated through IT automation implementations. Automated tasks and new work order templates were created to save time and costs.

The effects of standardization and automation of processes on time were investigated by comparing the time spent for each workstation and mobile phone order both in the beginning and at the end of the project. The average time spent on each order in the beginning of the process was found out by observing the employees during their normal work day. In April 2014 handling time for one workstation order was 43 minutes (Figure 19).

Workstation order handling by Lifecycle Management team in April 2014	Time spent (minutes)
Checking order, returning to customer if order is missing information	3
Creating work order to ticketing system	5
Ordering buffered device via e-mail from Preinstallation center + work order update	5
Creating installation task for Onsite Support	1
Informing Onsite Support about the 8h SLA order	2
Receiving preinstallation confirmation from Preinstallation center and updating work order + task	2
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Ordering replacement device to buffer stock + work order update	8
Adding order confirmation to the work order	2
Monitoring ticket closure	5
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register) - for buffered device	2
Checking and approving financer invoice	2
TOTAL	43

Figure 19. Average time spent on tasks in one workstation order in April 2014

The tasks highlighted with yellow were eliminated already during phase one with the automation implementations. For one workstation order this meant an 8 minute reduction in handling time.

Because of the delayed schedule of the automation project, the time spent in one workstation order after automation implementations were estimated by the employees (Figure 20).

Workstation order handling by Lifecycle Management team (estimated future state)	Time spent (minutes)
Checking order details, the work order and the template used	3
Checking device availability from buffer stock	1
Creating seperate work order for buffer restock	3
Ordering replacement device to buffer stock + work order update	6
Informing Onsite Support about the 8h SLA order	1
Receiving asset register form from Onsite Support via e-mail	1
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register)- for buffered device	2
Checking and approving financer invoice	2
TOTAL	25

Figure 20. Estimated average time spent on one workstation order after automation implementations

The results show that the average time spent on one workstation order would decrease from 43 minutes to 25 minutes. At the same time amount of tasks has decreased due the integration and task automation implementations.

In April 2014 handling time for one mobile phone order was 43 minutes (Figure 21).

Mobile phone order handling by Lifecycle Management team in April 2014	Time spent (minutes)
Check order, return to customer if order is missing information	3
Creating work order to ticketing system	5
Checking SIM card information for existing user	2
Ordering subscription for new user	5
Ordering buffered device via e-mail from Preinstallation center + work order update	4
Informing IC control tower about the 8h SLA order	1
Receiving preinstallation confirmation from Preinstallation center and updating work order + task	2
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Ordering replacement device to buffer stock + work order update	6
Monitoring ticket closure	5
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register) - for buffered device	2
Checking and approving financer invoice	2
TOTAL	43

Figure 21. Average time spent on tasks in one mobile phone order in April 2014

The tasks highlighted with yellow were eliminated already during phase one with the automation implementations. For one mobile phone order this meant an 8 minute reduction in handling time.

The average time spent for one mobile phone order after the automation was also estimated (Figure 22).

Mobile phone order handling by Lifecycle Management team (estimated future state)	Time spent (minutes)
Checking order details, the work order and the template used	3
Checking device availability from buffer stock	1
Creating seperate work order for buffer restock	3
Ordering subscription for new user	5
Informing IC control tower about the 8h SLA order	1
Ordering replacement device to buffer stock + work order update	6
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register) - for buffered device	2
Checking and approving financer invoice	2
TOTAL	29

Figure 22. Estimated average time spent for each task after automation implementations

In the mobile phone order handling the time spent on one order would decrease from 43 minutes to 29 minutes. Also the number of tasks decreased due the automations made and the integration to Pre-Installation Centre. Table 5 summarizes the time spent for each order before and after the project.

	Minutes spent in April 2014	Minutes spent in the future
Workstation order handling	43	25
Mobile phone order handling	43	29

Table 5. Time spent for each order before and after the project

The estimated minutes are only for one order and the results can be seen even more significant when considering the amount of orders coming in. If the average order amount weekly is around 10-30, the time savings have significant impact on the time spent in order handling process.

The results can be seen to be the outcome of wide IT Automation implementations rather than process standardization. However, by standardizing the processes the automation could be done as efficiently as possible. The results are significant and prove that manual work was effectively eliminated from the processes.

It needs to be noted, that in the beginning the new processes might take time to be adapted and more time is expected to be used in order processing in total. However, after new ways of working are adapted it is believed that the automation made the process more efficient and eliminated some of the manual tasks from the Lifecycle Management team. The results clearly show that due to the automation implementations, the department is able to increase its efficiency and reduce the manual effort in order processing.

5.3 Impact on quality

By simplifying its processes and making clear structure for the work flow of workstation and mobile phone order handling, the case company made it easier for the employees to perform their work. Clear instructions were emphasized in order to help the employees to avoid making mistakes and cause any deflections in quality. At the same time IT automation and the use of automated tasks were believed to help to meet the customer specific Service Level Agreements.

In order to see the impact of standardization of processes in quality, SLA figures from April 2014 to October 2015 were analyzed (Figure 23).

	SLA
April 2014	45,7 %
May 2014	65,9 %
June 2014	63,6 %
July 2014	89,5 %
August 2014	88,9 %
September 2014	26,5 %
October 2014	50,0 %
November 2014	44,6 %
December 2014	41,3 %
January 2015	65,3 %
February 2015	93,3 %
March 2015	75,0 %
April 2015	75,0 %
May 2015	N/A
June 2015	N/A
July 2015	N/A
August 2015	N/A
September 2015	83,3 %
October 2015	83,3 %

Figure 24. Customer specific SLA figures from April 2014 to October 2015

During the first months of the project, from April 2014 until July 2014, the old customer contract specific SLAs were still in use and these figures cannot therefore be fairly compared with the rest of the numbers. In overall the changes in SLA figures are quite drastic with high fluctuations. The highest result in February 2015 can be explained by the start of the standardization of processes. In the beginning of the project ticket handling methods were emphasized and special attention was paid towards meeting the agreed Service Level Agreements. Since February 2015 the SLA figures have stayed on a more stable level.

Unfortunately figures from May 2015 until August 2015 are not available due to a technical error in the reporting tool of the case company. The latest SLA results for September 2015 and October 2015 can be said to be fairly good and clearly the implementation of standardized processes have had a positive effect on customer specific SLAs as well.

However, it needs to be pointed out that in general the SLA figures are highly affected by the actions of Pre-Installation Centre as well as Onsite Support. Any problems in device installations are directly affecting the SLAs and therefore the figures cannot be said to be the direct result of the work of Lifecycle Management team.

The automation implementations are believed to have an effect on quality by making the process more efficient and by having tasks automatically assigned to the production teams. However, there are no technical possibilities at the moment to have separate SLAs for each task that would measure the completion of the service for those tasks that are under Service Level Agreement. This means that SLAs are still measured from ticket opening until ticket closure which makes the SLA reporting more complex.

6 Conclusions

In the beginning of the project in April 2014, the process of workstation and mobile phone order handling for the client contract was time consuming and complex. There were no clear instructions or work flow for the employees and the work consisted of several manual tasks.

In order to reduce the manual errors, to increase the efficiency and in the end, reduce the costs of the department, several actions were taken. The processes were carefully analyzed and most of the non-value added activities were removed. The department embraced the concepts of lean operations and was able to improve its internal processes through standardization and automation.

The results are quite clear and it can be said, that IT automation and standardization of organizations' processes can have a huge impact on the costs of the organizations. At the same time better quality and time savings can be achieved.

6.1 Key outcomes

The standardization procedures implemented had a big effect on costs of the client contract. The department was able to create clear structure for the processes which had a direct impact on employee hours spent on the work and therefore on costs as well. Almost 20% decrease in personnel costs and over 10% decrease in overall costs can be seen as a great start. The standardization of the department's processes was successful and all the tasks relating to the establishment of the service are now completed according to the same guidelines.

Even though the IT automation implementations are not yet in production, the effects of automated tasks and new integrations can already be estimated. The future state value stream maps give a good idea on how the department will able to eliminate identified waste areas and to create efficient order flow for both workstation and mobile phone order processes. At the same time, estimations on time spent on each task in the future give clear results of the successfulness of the project. And with higher volumes the time savings are even greater.

In overall, actions towards IT automation can be perceived as a success for the department. Automation of tasks and integrated tools enabled the possibility of some of the systems to become self-acting and therefore remove manual work done by the employees.

Since the case company was able to improve its internal processes, the costs reductions made are the kind that can be maintained as well.

The research showed that the case company was able to embrace the most important concepts of lean thinking and value engineering. At the same time, one of the key elements of lean operations was utilized; employee empowerment which enabled the ideas of employees to be used to make the processes more efficient. In overall, the department was able to eliminate identified waste areas in its processes and create efficient procedures that will ultimately create value for the customer as well.

6.2   Recommendations

Since the results are extremely encouraging the department should implement similar standardization of processes for the other client contracts as well. The results show that standardization can have a huge impact on the efficiency of how the work is done and it gives the employees a good structure on how to do their everyday work. The methods used during the project were quite effective and especially reporting every task with average time spent on it, could be a useful way to identify the problem areas for each customer contract.

The department should especially consider implementing similar changes to the customer contracts that are at the moment requiring a lot of work hours even when generating low volumes. Developing the internal processes and using value stream mapping to identify possible waste areas, can help the organization to find the areas that can be influenced and improved.

IT automation implementations could be especially useful for high volume clients. Since the decision of implementing automation procedures depends on the client contract, it is probably easier to persuade customer contracts with higher volumes. It is important to explore the options of using the existing IT automation implementations as a base for any other customer contract automations. There might we ways to implement similar changes with lower costs.

6.3   Suggestions for further development

The applied changes offer a great base for further automation implementations. Since the basic technical requirements are already in place, the case company should continue to develop the automation procedures. Especially further integrations for example with sup-

pliers or financer partners could enhance the operations. Also further task automation could be used to eliminate the waste areas still in place.

One important development area relating to quality would be the possibility of having Service Level Agreement metrics in the tasks instead of the work orders. This would give the department more accurate data on quality and the SLA reports could be utilized more efficiently.

In order to better monitor and manage the employee costs for each customer contract, it would be recommended to keep monthly data of the financial information. Possible fluctuations could then be further investigated and any unusual changes would be recognized right away.

6.4   Benefits to the company

The thesis gives the case company important information relating to the cost reductions it can achieve through improving its internal processes. The research made can be further used to plan and implement future improvements. Recording average time spent for employee tasks is something the department can utilize to other client contracts as well.

The results provide the team manager useful information in order for him to better plan, direct and control the operations of the department, which in general is the ultimate goal of managerial accounting.

6.5   Feedback from the case company

In overall, the feedback from the case company was very positive. The company feels that the research met well the anticipated expectations and the results are useful. The case company feels that it can utilize the results and the results can help on deciding if similar changes to other customer contracts of the department should be implemented. The results can also be used in further development of company processes and implementations.

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Appendices

Appendix 1. Average time spent for one mobile device order in April 2014

Mobile phone order handling by Lifecycle Management team in April 2014	Time spent (minutes)
Check order, return to customer if order is missing information	3
Creating work order to ticketing system	5
Checking SIM card information for existing user	2
Ordering subscription for new user	5
Ordering buffered device via e-mail from Preinstallation center + work order update	4
Informing IC control tower about the 8h SLA order	1
Receiving preinstallation confirmation from Preinstallation center and updating work order + task	2
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Ordering replacement device to buffer stock + work order update	6
Monitoring ticket closure	5
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register) - for buffered device	2
Checking and approving financer invoice	2
TOTAL	43

Removed during phase 1

Appendix 2. Average time spent for one workstation order in April 2014

Workstation order handling by Lifecycle Management team in April 2014	Time spent (minutes)
Checking order, returning to customer if order is missing information	3
Creating work order to ticketing system	5
Ordering buffered device via e-mail from Preinstallation center + work order update	5
Creating installation task for Onsite Support	1
Informing Onsite Support about the 8h SLA order	2
Receiving preinstallation confirmation from Preinstallation center and updating work order + task	2
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Ordering replacement device to buffer stock + work order update	8
Adding order confirmation to the work order	2
Monitoring ticket closure	5
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register) - for buffered device	2
Checking and approving financer invoice	2
TOTAL	43

Removed during phase 1

Appendix 3. Future state estimation of time spent for one mobile device order

Mobile phone order handling by Lifecycle Management team (estimated future state)	Time spent (minutes)
Checking order details, the work order and the template used	3
Checking device availability from buffer stock	1
Creating seperate work order for buffer restock	3
Ordering subscription for new user	5
Informing IC control tower about the 8h SLA order	1
Ordering replacement device to buffer stock + work order update	6
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register) - for buffered device	2
Checking and approving financer invoice	2
TOTAL	29

Appendix 4. Future state estimation of time spent for one workstation order

Workstation order handling by Lifecycle Management team (estimated future state)	Time spent (minutes)
Checking order details, the work order and the template used	3
Checking device availability from buffer stock	1
Creating seperate work order for buffer restock	3
Ordering replacement device to buffer stock + work order update	6
Informing Onsite Support about the 8h SLA order	1
Receiving asset register form from Onsite Support via e-mail	1
Updating Asset register (CMDB)	2
Updating Asset register (Finance register)	2
Updating Asset register (CMDB) - for buffered device	2
Updating Asset register (Finance register)- for buffered device	2
Checking and approving financer invoice	2
TOTAL	25

43

Appendix 5. Structure for the interviews with the department's employees

Employee interview structure used in 2014 – Workstation and mobile phone ordering process for the client contract

1. What are the biggest problem areas from your point of you in your everyday work?

2. Which are the tasks that take most of your time?

3. How would you improve the processes of workstation and mobile phone order handling?

Employee interview structure used in 2015 – Workstation and mobile phone ordering process for the client contract

1. How has the order handling process changed for Lifecycle Management team?

2. How would you estimate the order handling process to change when the IT automation implementations are in place?

Appendix 6. Structure for the interview with the department's team managers

Manager interview structure used in 2013 and 2014 – Workstation and mobile phone ordering process for the client contract

1. What are the biggest problems of Lifecycle Management team's order handling processes for this client contract at the moment?

2. How would you improve the processes of workstation and mobile phone order handling?

3. What would be the impacts of these improvements?

Manager interview structure used in 2015 – Costs of Lifecycle Management team

1. What are the main costs of Lifecycle Management team?

Appendix 7. The department's financial information: Personnel costs

Average employee salary / month	2 750,00 €	
Multiplier used by the case company	1,7	
Total	4 675,00 €	
	FTE	**Personnel costs**
April 2014	1,6	7 480,00 €
May 2014	1,6	7 480,00 €
June 2014	1,6	7 480,00 €
July 2014	1,2	5 610,00 €
August 2014	1,6	7 480,00 €
September 2014	1,6	7 480,00 €
October 2014	1,6	7 480,00 €
November 2014	1,6	7 480,00 €
December 2014	1,6	7 480,00 €
January 2015	1,7	7 947,50 €
February 2015	1,7	7 947,50 €
March 2015	1,7	7 947,50 €
April 2015	1,7	7 947,50 €
May 2015	1,7	7 947,50 €
June 2015	1,6	7 480,00 €
July 2015	1,2	5 610,00 €
August 2015	1,5	7 012,50 €
September 2015	1,4	6 545,00 €
October 2015	1,3	6 077,50 €
November 2015 (estimate)	1,3	6 077,50 €
December 2015 (estimate)	1,2	5 610,00 €
January 2016 (estimate)	1,1	5 142,50 €
February 2016 (estimate)	1	4 675,00 €
March 2016 (esimate)	1	4 675,00 €

Appendix 8. The department's financial information: Pre-Installation Center costs

	Pre-Installation costs
April 2014	570,60 €
May 2014	570,60 €
June 2014	570,60 €
July 2014	322,50 €
August 2014	570,60 €
September 2014	570,60 €
October 2014	570,60 €
November 2014	570,60 €
December 2014	570,60 €
January 2015	263,00 €
February 2015	420,00 €
March 2015	70,00 €
April 2015	481,50 €
May 2015	495,00 €
June 2015	814,00 €
July 2015	322,50 €
August 2015	772,50 €
September 2015	987,00 €
October 2015	1 080,50 €