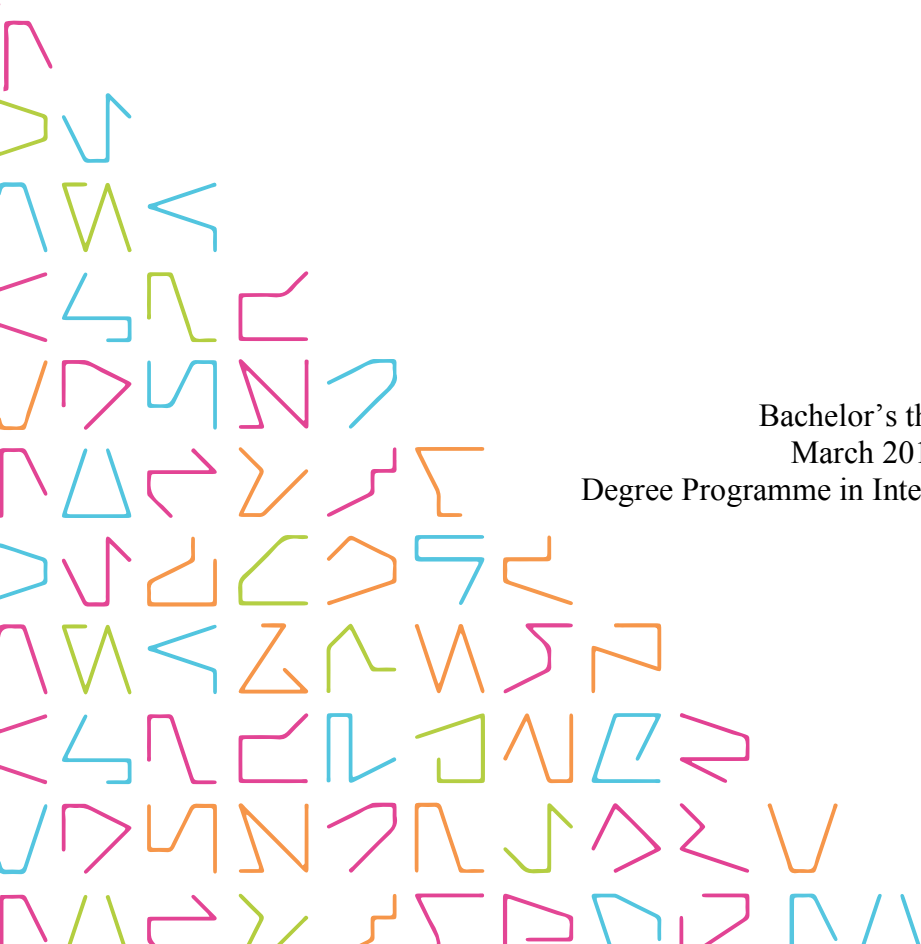


STREAMLINING THE CUSTOMER SERVICE PROCESS

Alisa Korpela

Bachelor's thesis
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Degree Programme in International Business



ABSTRACT

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Kemira, a Finnish company has its domestic customer service based in Gdansk, Poland. The customer service is divided into front- and back offices. The aim of this thesis was to conduct a research on customer service streamlining based on consolidating the Finnish customer service's front- and back offices into one unit at Kemira Gdansk. The research hypothesized that the efficiency and speed of customer service will be improved with this consolidation, and this hypothesis is based on the theory of lean thinking.

The research used quantitative and qualitative data gathered on-site by the front- and back office employees, both before and after the consolidation. This data was then analysed, and the average times of order completion were calculated and measured to compare the order-to-delivery process speed before and after the consolidation.

It was found that the streamlined, consolidated form of combined front- and back office has been a success, and lead to savings in time and man-hours. The results of this thesis could be used by companies looking to streamline their customer service or order-to-delivery process.

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ABBREVIATIONS AND TERMS

Consolidation	In this thesis, refers to the consolidation of the front- and back offices
EDI	Electronic data interchange
ERP	Enterprise resource planning
SCM	Supply chain management
Value	A concept of lean thinking, refers to what customers want, and what the company has to create for the customers
Waste	A concept of lean thinking, refers to anything that does not create value

1 INTRODUCTION

1.1 Introduction of Kemira Gdansk

Kemira is a Finnish multinational company that manufactures and sells chemicals. The customer service of Kemira for domestic Finnish deliveries in the segment of Industry & Water (chemicals for industrial factories and water purification plants) is based in Gdansk, Poland, at the Kemira Business Center, along with the rest of the customer service teams for the EMEA (Europe, Middle-East, Africa) area.

The customer service is normally divided into two teams; the front office and the back office. Front office's main responsibility is to take orders from the customers by phone and email, and then create and input the orders into SAP, Kemira's ERP system. Back office monitors these open orders, and creates the delivery and organizes transportation through SAP, and is mostly in contact with the delivery companies. This process is called the order-to-delivery process. In the following chapters, the front and back offices and their work will be explored more thoroughly.

As of August 2017, there were two people working at the front office, and one at the back office for the domestic Finnish deliveries in Gdansk. The only back office employee left the company at the end of September 2017, and since there will be no replacement for the time being, there is no one working at the back office. Hence it was decided that these two units will be consolidated together in Gdansk for the Finnish Industry & Water customer service team, so that the entire process from order to delivery is handled by only the front office from beginning to end. The back office employee has trained the front office employees for these tasks, before leaving the company in the end of September 2017 to prepare for the consolidation. This change presents itself a chance to measure whether the old or the new model is better, which is the basis of this research.

1.2 Order-to-delivery process as part of SCM

The order-to-delivery process handled by the back and front offices are part of a wider concept of Supply Chain Management (SCM). To put it simply, SCM is defined as being concerned with supplies, information, and money flowing in a network encompassing of suppliers, producers, delivery companies and customers. It is important to realize that SCM is not simply about moving products from place to place, but that it includes the flow of information and money as well (Sakki 2009, 14).

As part of SCM, at the customer service at Kemira Gdansk, the front and back offices are in direct contact as intermediaries with Kemira's domestic factories, Kemira's third-party manufacturer partners, the various delivery companies, and the end users themselves, the customers. Hence, when improving the customer service part of the company, it would also improve the entire efficiency of the company's SCM.

1.3 SAP and ERP

The most important tool used by the front and back offices is SAP, a software for ERP (Enterprise resource planning). ERP is defined as a major software component of any logistics information system – it enables the company to initiate, track, monitor and report on customer and replenishment orders through transactions in a company shared database (Bowersox, Closs, Cooper 2002, 222).

Before the modern ERP systems, in the 1970s as more and more operations and financials were starting to be computerized, companies used to have a different software for every function, usually from various developers. This caused inconsistencies and incompatibilities. An important reason that drove companies to implement modern unified ERP solutions was that due to the legacy software being developed in a time when data storage was precious, many of the software was incapable of surviving the Y2K bug as they had data recordable only for the end the century (Bowersox, Closs, Cooper 2002, 223).

SAP (Systems, Applications and Products in Data Processing), is a German company whose eponymous software commands a significant share of the market in ERP soft-

ware (Curran & Ladd 2000, 25). Almost everything in customer service is done through this software, from handling orders to creating delivery orders and invoicing. Using SAP is done through transactions, each one opening a part of the application meant for a specific purpose, for example, for creating a delivery.

1.4 The definition of Kemira Gdansk's Finnish old front and back office units

Both the front office and back office has many responsibilities ranging from large to small, but for the purpose of this research, the main tasks of order-to-delivery process for the front and back office are defined and limited to a simplified process flow as follows (Figure 1):

Front office:

1. Receive customer order by email or phone
2. Create order into SAP
3. Wait for transportation confirmation from back office
4. Send order confirmation to customer

Back office:

1. Monitor open orders (manually) from SAP
2. Create delivery for the open order into SAP
3. Create transportation order from the delivery in SAP to send to the plant and the delivery company
4. Wait for confirmation of delivery from the delivery company by mail
5. Send information to front office about confirmation

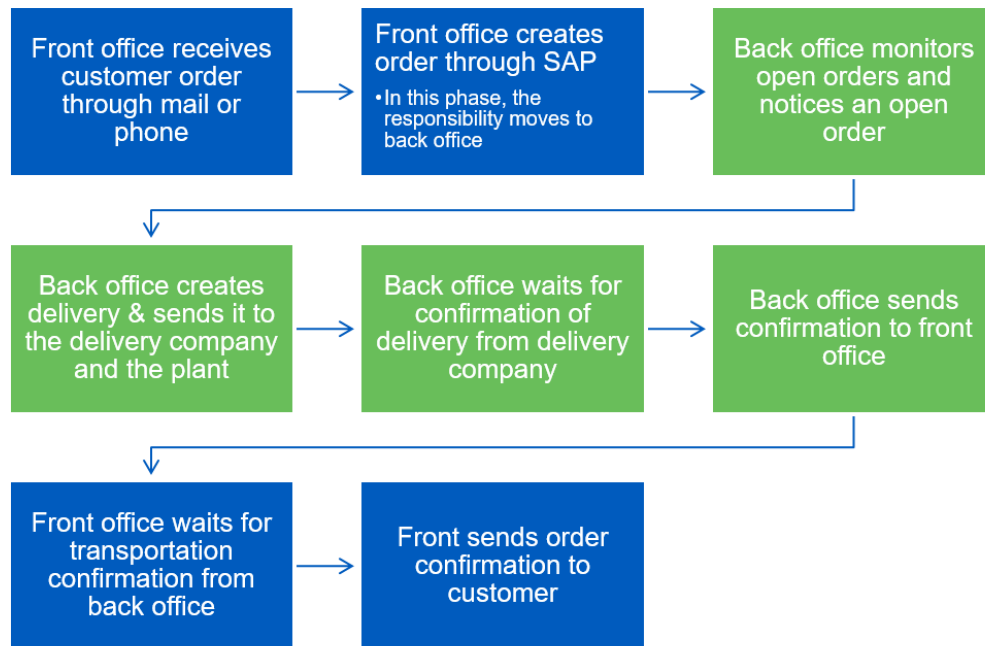


FIGURE 1. Old model of order-to-delivery process flow

In the old model process flow (Figure 1), the front office's work is marked in the colour blue, and the back office's work is marked in green. It can be seen that the front office's work flow is interrupted after order creation by leaving the next step, delivery creation and transport order creation, to the back office. While waiting for transport confirmation from the back office, the front office can do nothing to advance the process for an order.

1.5 New model of consolidated front and back office

The new model starting from October 2017 is to consolidate these processes into one time saving order-to-delivery process flow, where it would be possible to cut the parts where both parties are waiting for confirmation from another party – previously front office waited for confirmation from back office, and back office waited for confirmation from the delivery companies, before confirming the transportation to the front office. Furthermore, when front office creates an order, they entrust the delivery creation process to the back office. Front office employees feel that they would stay better on track of the orders, were they to manage the entire process themselves. That way there would be no need of asking the status of orders via Skype, a communications software, from the back office.

A new streamlined process flow would be (Figure 2):

Customer service for domestic market (front office without back office):

1. Receive customer order by email or phone
2. Create order into SAP
3. Create delivery into SAP
4. Create transportation order from the delivery in SAP to send to the plant and delivery company
5. Wait for confirmation of delivery from the delivery company
6. Send confirmation to customer

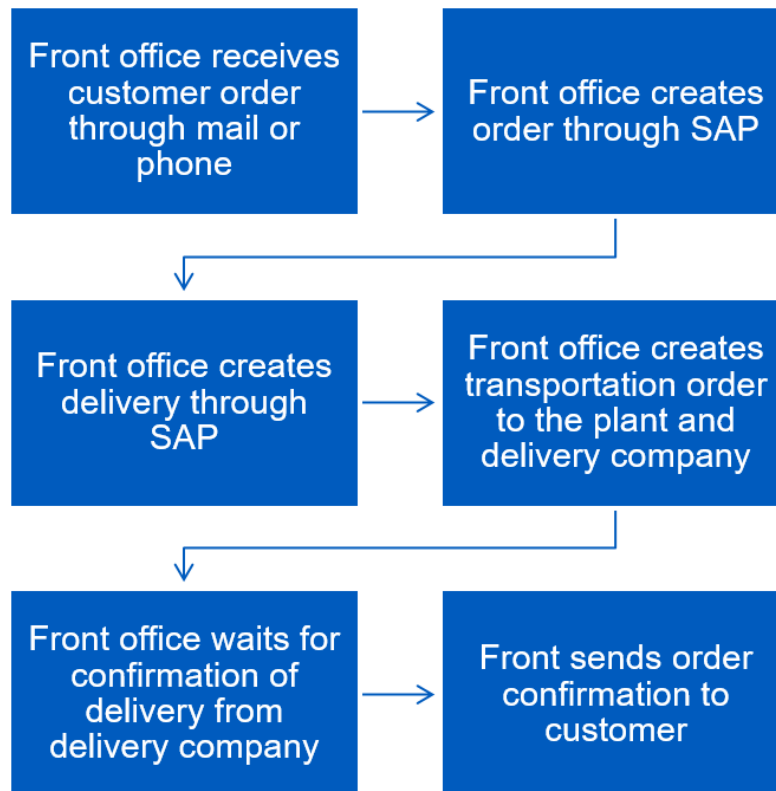


FIGURE 2. New model of order-to-delivery process flow

This would remove the need for the front office to delegate the delivery creation to another party. According to one of Kemira's senior logistics agents, the longest time taken in the old process flow is how long it takes for the back office to notice these orders from the open orders list in SAP, as the list has to be manually updated through an SAP

transaction. Sometimes updating the list takes a minute or even a few, slowing down the whole process flow.

If these processes were consolidated, there would not be a constant need to update the list and find open orders, when the person from front office who makes the order can easily create delivery for it immediately themselves. Streamlining the process would then save time and make it easier for the front office employees to get the customer's order to the customer itself.

1.6 Thesis objective, purpose and hypotheses

The main purpose of this research is to investigate how much time, if any, is saved by the consolidated new model of the combined front and back office. The main research questions are based on time; how much time the order-to-delivery process takes before the consolidation, and how much time the process takes after the consolidation. In addition, a secondary research will measure the time it takes for the various delivery companies to confirm the transportation order sent to them. Finally, there is a questionnaire for the front office employees concerning their thoughts on the benefits and negatives of the consolidation.

The hypotheses are: in addition to time saved in the whole order-to-delivery process, consolidating the front and back office will result in less extra time spent not working, and will save money when Kemira no longer has to employ two positions, as one can handle the entire process. In addition, front office employees will feel more confident in their work as they have the responsibility of the entire process, and it will result in less mistakes. In fact, this sort of model has been in use in Kemira previously, but it was changed into the current split between front- and back office a few years ago after moving the customer service team to Gdansk. This model is still in use in Kemira's Helsinki office, where Paper & Pulp orders are handled.

In the end, this research will give feedback whether to continue with the old model of having a separate front and back office for the domestic orders, or if it would be better served by cutting the proverbial middle-man, the back office, from the process.

2 CONCEPTS, THEORY AND THE THESIS PROCESS

2.1.1 Lean thinking

This thesis' hypotheses on customer service speed improvement are based on the theory of lean thinking by Womack & Jones, specifically lean services.

Lean manufacturing, or simply *lean*, has its history in the Japanese car company Toyota. Toyota's executive Taiichi Ōno identified the excess and removable waste in production, *muda* in Japanese, in their Toyota Production System, which was later termed lean manufacturing. This idea was further developed into the idea of lean thinking as described by Womack & Jones, in their 1996 book *Lean Thinking*. Womack & Jones describe lean thinking as "*lean* because it provides a way to do more and more with less and less – less human effort, less equipment, less time and less space – while coming closer and closer to providing customers with exactly what they want." (Womack & Jones 2003, 15)

Even though lean services practises are inherited from lean manufacturing, when applied to services they can generate large economic and financial results, as well as improvement of worker's behaviour. There is still a need for new strategies and technologies to the service sector, as it accounts for over half of the gross domestic product and employment of most modern economies (Leite & Vieira 2015). Instead of lean manufacturing, at Kemira's customer service, lean services can be used, based on the same principal idea but concerning customer service instead of manufacturing physical goods. Services are defined as "basically processes which are characterized by the interaction between the customer and the resources of the service provider." (Escobar & Revilla 2005). In this thesis the customer service is the resource of the service provider.

Waste, or *muda* in Japanese, is an integral concept of lean thinking, and refers to and includes "any human activity which absorbs resources but creates no *value*... groups of people in a downstream activity waiting standing around waiting because an upstream activity has not delivered on time." (Womack & Jones 2003, 15). Those original definitions of waste come from Toyota, but Womack & Jones have identified a new waste;

the misuse of intellectual capital, meaning not using the complete employee capacity for improvement (Leite & Vieira 2015).

Value is another concept of lean thinking. Value is defined as something a company produces for their customers, but its ultimate *value* can only be defined by the customers themselves. It is the opposite of waste (Womack & Jones 2003, 16). By removing waste from Kemira's customer service process, more value for the customer can be created.

In the customer service process at Kemira Gdansk, the waste comes from waiting for confirmation and at times slow communication between the front and back offices. While one party is doing their part, the other party cannot help the order-to-delivery process to progress, creating wasted potential. Other identifiable waste at the back office include updating the open orders list in SAP, as it takes excess time and requires manual work. As based on lean thinking, consolidation of the customer service at Kemira would remove this waste from the customer service process. As the guideline at Kemira is that the order must be confirmed to the customer by the front office within 24 hours of receiving it, it is imperative that the process is fast and fluid.

2.2 Thesis working methods and process

This thesis is based on research done according to the schedule presented in this chapter. Quantitative data was collected in two parts. The first part was done in August-September 2017 and concerns the time used while the front and back office are working separately, before the consolidation. The first part included collecting and inputting quantitative data into a spreadsheet to calculate the following times of the order-to-delivery process per each recorded order:

- Time it takes for the back office agent to notice an open order from its creation in SAP by the front office
- Time it takes for the back office agent to create delivery in SAP (minutes and seconds) after clicking it open from SAP's open order list and sending it to the delivery company & plant

- Time in minutes that it takes for the back office to confirm the delivery for the front office
- Complete time from when the front office receives the order until the front office can confirm the delivery for the customer

This involved the back office logistics agent and the two customer service agents of front office, who were monitoring their work for a set amount of time to create enough meaningful data. Proposed length of monitoring was to be minimum of two weeks, or until a certain amount of orders had been processed. Due to deliveries from certain plants working differently, this data recording does not include the following cases:

- Orders that are for plant FI7G and FI51 due to order creation being handled at the plants locally instead of Kemira Gdansk's back office
- Orders that use the Incoterm FCA and require no transportation order to be sent into the delivery companies
- An order where the company must procure the material from a third-party plant, because the process takes longer due to having to consult the procurement office, and the plant itself for a confirmation

Properly measurable orders included those delivered from plants FI53, FI52, FIV4, FI5E. The plants mentioned are identified by their SAP code for confidentiality.

The second data collecting phase began when this new process was put underway in the end of September, after the former back office employee has completed training the front office employees to this new process. Monitoring and completing the data collection was done by the front office employees to calculate the following aspects of their work:

- Time it takes for the entire process from receiving the order until the order has been confirmed for the customer
- Qualitative data in the form of feedback from the front office employees

This second data recording was completed from early October 2017 until the end of the month. A feedback form was sent to and answered by the front office in January 2018.

3 ANALYSING THE ORDER-TO-DELIVERY PROCESS OF BACK OFFICE BEFORE CONSOLIDATION

The work process of the back office before the consolidation has been recorded from 15th August to 8th September 2017. One person was working at the back office at the time. The data yielded recorded results from 162 orders. Various measurements have been recorded, including the time when the back office noticed the order in SAP, when the work began on the order, the time it took to create and send the transportation order to the delivery company, which plant was the pickup point for the product, the delivery company in question, and finally, the time when the delivery was confirmed to the front office.

Simply calculating the average time taken for an order based on these parameters does not give an accurate representation of how long handling each order has taken. Hence, various methods have been used to provide more easily understandable data.

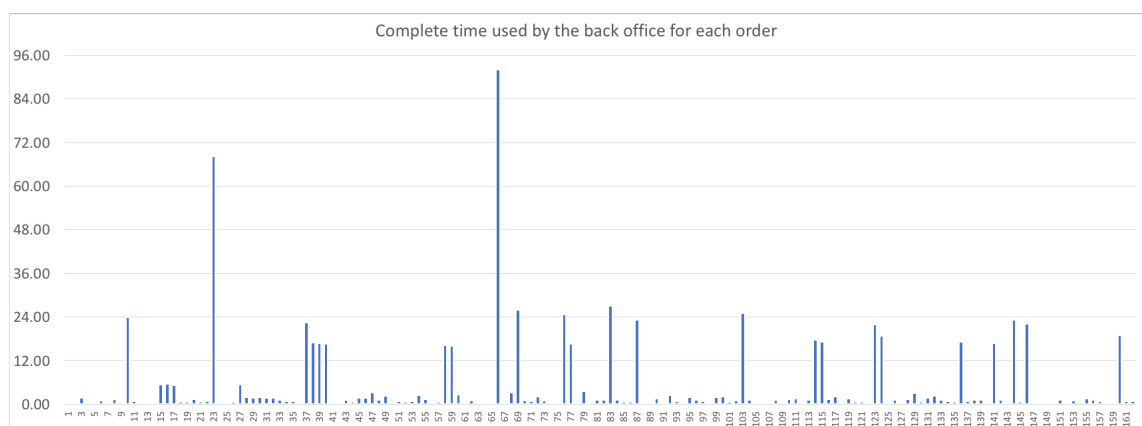


FIGURE 3. All 162 orders with the complete used time by the back office represented in hours

Out of these 162 recorded orders, the vast majority of orders have been completed in under 24 hours at the back office, as can be seen in the chart above (figure 3). The few outliers increase the average time; therefore, a median time is also presented, showing the point where half of the orders are below, and half are above the median number. The average complete time used by the back office on these orders is 4 hours and 37 minutes. However, the clear majority of the orders have taken less than an hour to complete; the median is 59 minutes.

The following chapters contain a detailed analysis of what goes on in the back office during this time – where is all that time spent. The complete time taken by an order consists of three measured factors; time spent before beginning to work on the order after noticing it in SAP, time spent on creating the transportation order in SAP, and lastly, the time spent after sending the transportation order to the delivery company and sending the confirmation to the front office.

3.1 Time spent before beginning to work on the order

After the back office has noticed an order, there is a delay before they begin to work on it, even though they should normally start working on it immediately. According to the data of 162 orders, the longest time it took was five hours before work was started on an order. That said, the vast majority of the orders have been handled immediately upon noticing them however – the average time before beginning to work on a noticed order is only 19 minutes and 37 seconds. Out of the 162 orders, only 9 orders have taken the back office over an hour to begin working on them, so the problem orders are quite rare.

3.2 Time spent creating and sending a transportation order

After noticing an open order in SAP, the next step for the back office is to create a delivery number for the order in SAP, in order to get a transportation order from it to send for the delivery company. It doesn't take long to create a delivery in SAP for an order, once the order has been noticed and work has started on it – the average time creating the delivery and sending it to the delivery company is merely one minute and 55 seconds based on 162 orders. The longest time recorded was 8 minutes 15 seconds, and this order was for plant FIV4, where certain extra measures must be done. The shortest order took only 1 minute and 5 seconds.

3.3 Time spent with waiting for confirmation from a delivery company

The time recorded in the data is the time when the delivery confirmation was forwarded to the front office – ergo, it does not completely represent the actual response time from

the delivery company, as it also includes time when the response had been noted by the back office and sent to the front. Different delivery companies take different time to answer to transportation orders sent to them by the back office, some take longer, some take less.

In addition, back and front office working hours are normally from 7:00 to 15:00, therefore if an order has been sent to a delivery company late in the evening, the response will usually be handled in the next morning, resulting in many extra hours – out-of-office-hours have not been removed from the cumulative data. This whole time has been included due to the fact that orders should be confirmed to the customer within 24 hours, according to the company's guideline.

Delivery companies are not normally chosen by the back office, instead the information comes from SAP, where the logistics freight team, a separate department at the company, has inserted it based on the product. A total of 11 different delivery companies were used in the recorded 162 orders.

3.3.1 Analysis and introduction of all the used delivery companies

The following chapter will introduce the 11 delivery companies used and the average time spent with them per order. Also represented are the number of orders sent to each delivery company. The companies are identified by their SAP number instead of their names.

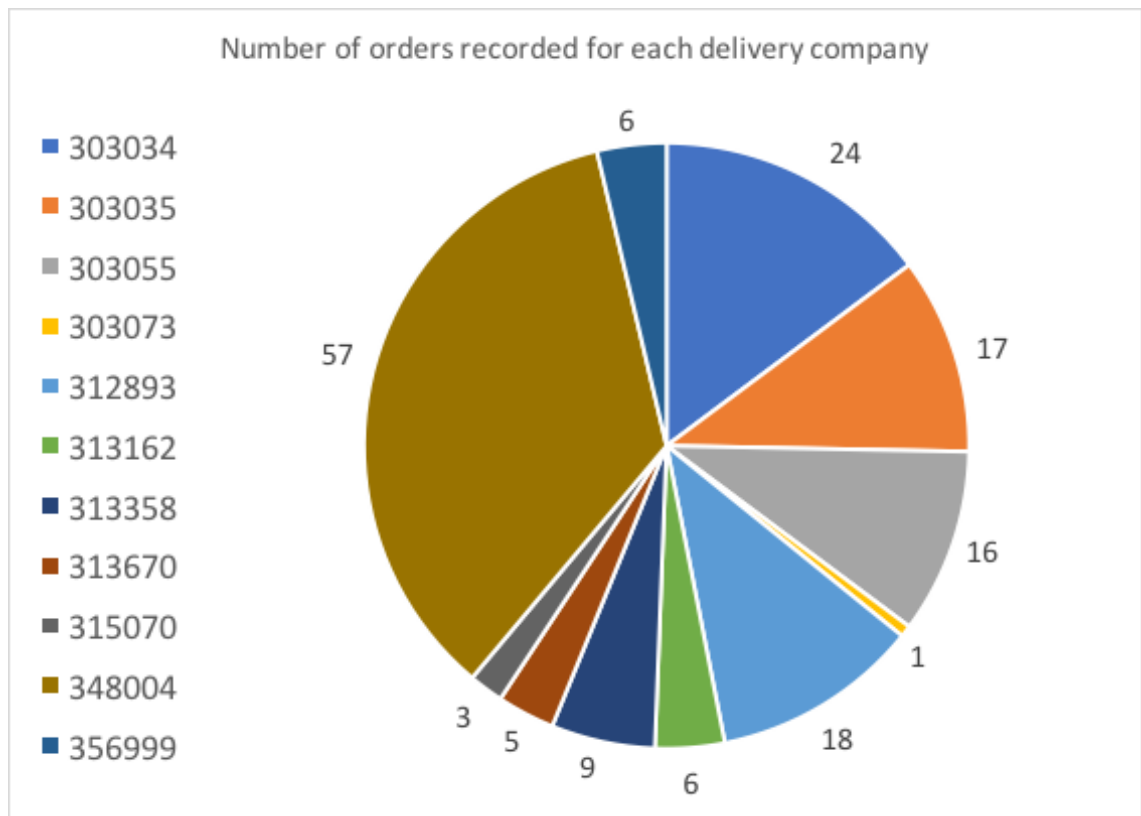


FIGURE 4. Number of orders for each company from the recorded 162 orders

Company 303034

This company had 24 orders. Their average waiting time for response was 8 hours 45 minutes, the median is 1 hour 2 minutes. This company has the highest average waiting time. There were 2 orders where the answer took longer than 24 hours, but 13 orders took less than an hour, the shortest being just five minutes.

Company 303035

17 orders were recorded for this company, average time being 8 hours 20 minutes, median time 54 minutes. The shortest time was only five minutes, however this delivery company also had the longest recorded time waiting for their confirmation took over 4 days, as seen in the graph above (figure 4). This long delay for this order was a special case, as none of the other orders have taken 24 hours or more.

Company 303055

There were 16 orders with this company, average time being 5 hours 56 minutes, median time 20 minutes. Even though this company had two orders where it took over 24 hours to get a response, most of their deliveries were responded with great speed; the

shortest time is actually less than a minute, and nine orders were done in less than an hour.

Company 303073

Only one recorded order was done with this company, and it took 2 hours 16 minutes to confirm the order to the front office. This delivery company is not used very much, and they require a customer number when sending orders to them, creating a little extra work for the back office.

Company 312893

18 orders were recorded with this company, with average time of 3 hours 13 minutes, median time being 50 minutes. Three orders increased the average time because they were sent to the company very late the previous day by the back office, but the answer was received early in the morning – over half of the orders were processed in less than an hour.

Company 313162

This company is used more for international deliveries, only six domestic deliveries were recorded. It is a large multinational delivery company and as such, their response time was fast – the average is 25 minutes, median 17 minutes. Also, this company does not handle bulk deliveries by truck, only packed containers, which means it cannot be utilized as much as some of the other companies.

Company 313358

Nine orders were recorded for this company, the average being 3 hours and 1 minute due to one order taking over 24 hours to complete. However, the other orders took very little time, median being 4 minutes, and the shortest being only one minute, meaning a near instantaneous reply.

Company 313670

Only five recorded orders on this company, the average time being 8 hours and 37 minutes. Two of the orders took longer due to being handled the next day, hence the high average. Median is only 24 minutes.

Company 315070

Only three orders were done using this company. They were all handled quickly, with average time being 30 minute, and median time being 10 minutes.

Company 348004

Clearly the most used delivery company for domestic industry & water. A total of 57 orders were handled by them, counting to over a third of the recorded orders. Their average is 1 hour 54 minutes, and the median is 28 minutes.

Company 356999

Six orders were recorded for this company. They were all handled very quickly – the average is only seven minutes, the shortest of all. Their longest order took only 12 minutes.

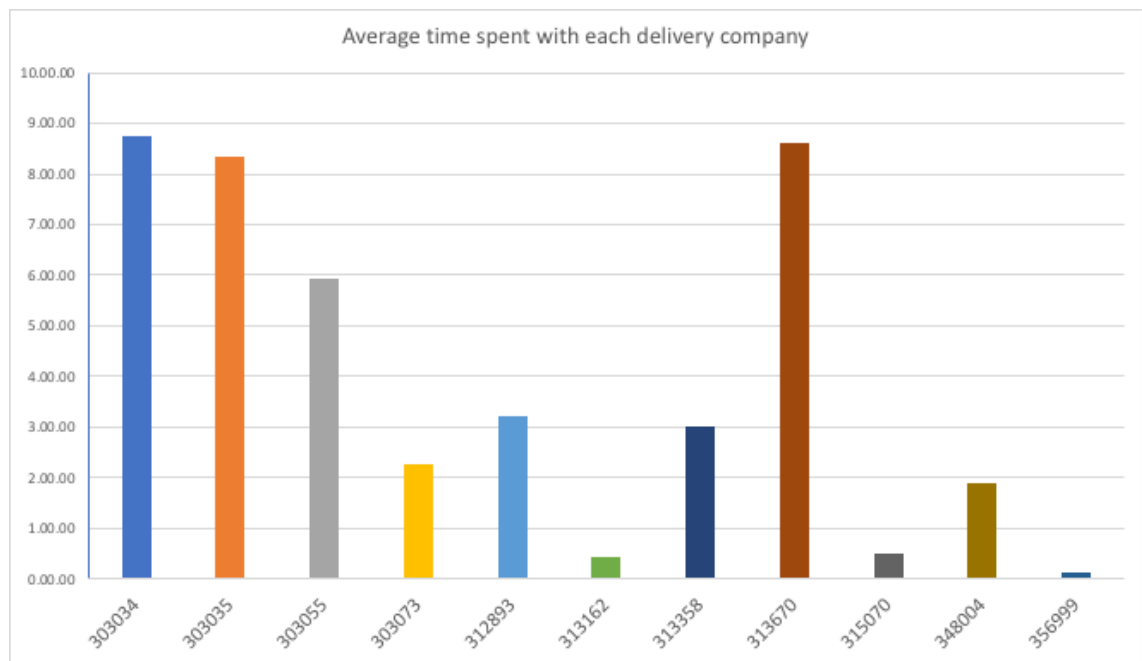


FIGURE 5. Average time spent with each delivery company in hours

Average time spent with the delivery companies in total is 4 hours 16 minutes. This means that four companies were over the average, by far – companies 303034, 303035, 303055 and 313670. All of them had their average from almost six to almost nine hours. It seems clear that some of the delivery companies have much faster response time and most of their orders are usually handled on the same day. On the other hand, it is concerning that some companies seem to be vastly slower. In the case of companies 303034 and 303035, being among the second and fourth most used companies respectively, their average times are among the highest. Another high average company is 313670,

but this company was only used for a few orders. A very positive finding is that the company that handles over one third of the orders, 348004, is well below the average.

Also, it wouldn't be fair to only consider the delivery companies through their average times. Thus, the median times are presented below as well.

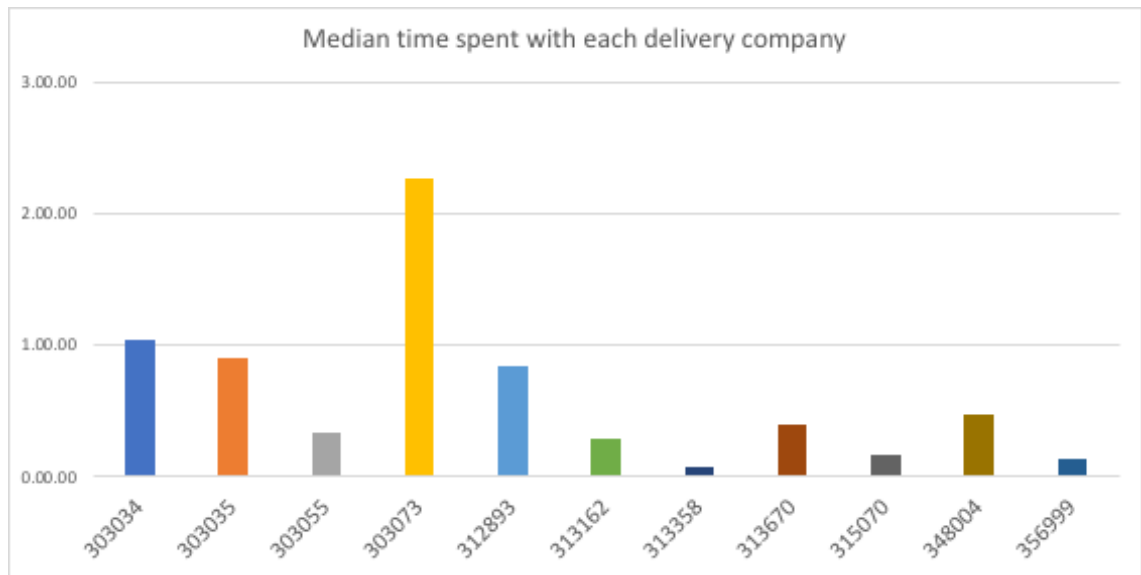


FIGURE 6. Median time spent with the delivery companies, in hours

The median times are closer to each other than the average times. In fact, one of the companies with the lowest average time, 303073, actually has clearly the highest median time, but this is because there was only one recorded order with this company, so the average and median are the same. When comparing the average and median times, it can be seen that companies that have had trouble with certain orders and thus have a high average, are still performing well when it comes to most of the orders. This is why the median is also important in addition to the average.

3.4 Considering back office's work in total – where to remove waste from

As can be seen in the graph below (figure 7), the vast majority of the time used by the back office out of all the orders consists of waiting for the confirmation from the delivery companies. It can be seen when comparing the average time used for waiting for the delivery company to the time used before beginning to work on an order, and the time used to create a delivery in SAP, both of which take far less time.

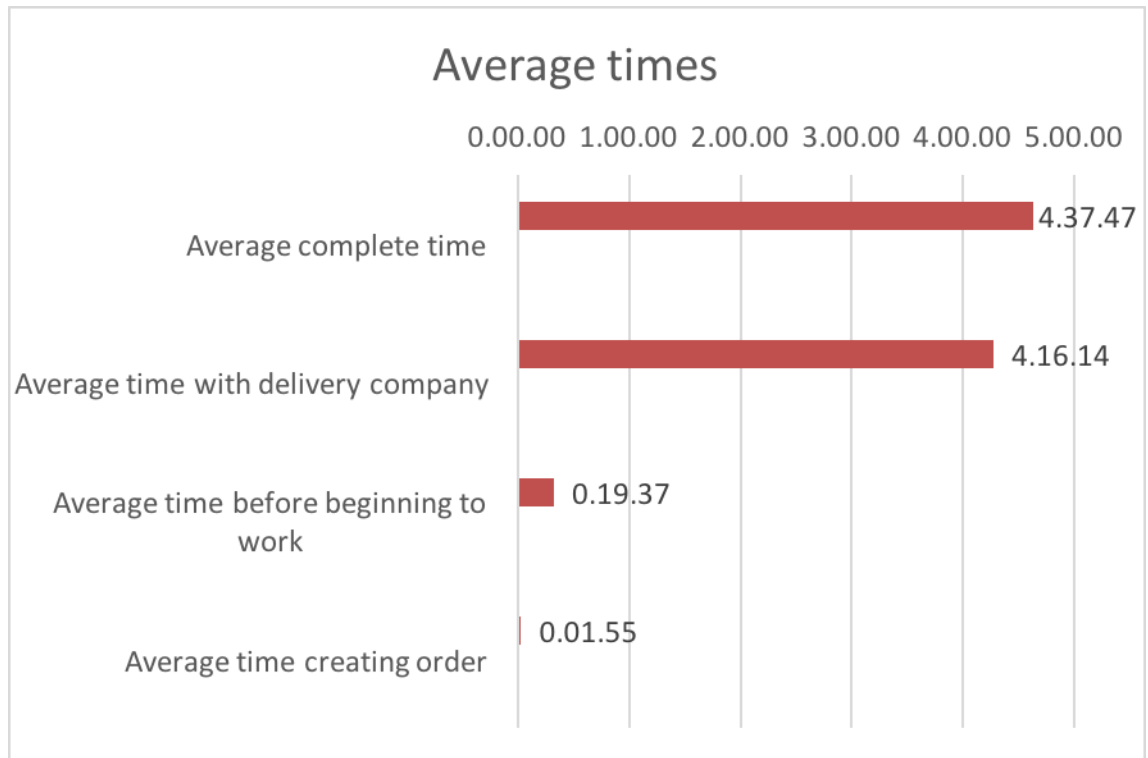


FIGURE 7. Average times of back office work for the 162 recorded orders, in hours

However, there are also problems with the average time before beginning to work, so putting all the blame on delivery companies would be mendacious. Some orders exist where the back office has noticed an order, but has not acted upon it in reasonable time, sometimes taking even longer than one hour before having begun to work on it. When the back office is not capable of doing their work for whatever reason, the process is standing still, and the front office must wait extra time for them to be able to confirm the delivery to the customer, so the performance is not only dependent on the delivery companies.

This is a prime example of *waste* that should be erased – people on the chain waiting for other people to complete their work. Ideally, the back office would begin work immediately after seeing an open order. In addition, having just one person at the back office means there is no one ready at all times at the office, to be able to respond. Possible reasons for absence include breaks, meetings, and issues that take precedence.

In this case, removing the back office from the process entirely would seem logical, as it would erase this issue by moving the responsibility entirely to the front office – the

front office has more employees as well, and they can take turns in lunch breaks and other times when they have to be away from their work stations.

Other than that, the average waiting time between the various delivery companies differs, as does the amount of problem orders that arise with some of them, including taking unreasonably long time to answer to enquiries, or even taking a wrong product to the wrong place. Concerning the work of back office, it is clear that the majority of their working time per order is spent on waiting for the delivery confirmation to send to the front office.

It might make sense to consider if changing some of the delivery companies for certain products would make the process faster or easier, and therefore cheaper in the long run. This could be a potential future research topic for the company, as these problem orders per each delivery company were not recorded.

In addition, the usage of EDI (Electronic data interchange) would be beneficial. EDI in simple is defined as computer-to-computer exchange of structured data for automatic processing. It is used by supply chain partners to exchange essential information necessary for the effective running of their businesses, and its benefits include the speed of transactions, reduced cost and errors, and the fact that information has to be only entered into the system once, which in this case would be by the back office employee inputting it into SAP (Rushton, Croucher & Baker, 2006, 530). Then, the delivery would be confirmed at once without the need of consulting the delivery company. None of the domestic orders utilize EDI, even though this system is in use in some foreign export deliveries. The cost of setting up EDI for all the different partners, and the benefits of it could be worth looking into.

4 ANALYSING FRONT OFFICE WORK BEFORE CONSOLIDATION

The work of the front office before consolidation has been recorded from August 25 to September 8, 2017. Two people were working at the front office at the time, however, only one employee's orders were recorded, of which there was a total of 55. The order parameters recorded were similar to the ones that were used for the back office. They include the time when the front office noticed or received an order, when they created a sales order into SAP, when a delivery confirmation was received from the back office, and lastly, when the order was confirmed for the customer.

From this data, the complete time it has taken for an order to be confirmed for the customer from the time it was received has been calculated. The average complete time is 6 hours and 8 minutes. The average is pushed high due to a few orders that have taken longer than usual. The median time is much lower; 2 hours and 14 minutes. The company policy is that orders should be confirmed to the customer within 24 hours, but some of the orders have taken longer than this to confirm – there are three such cases out of the 55 recorded orders. In most of the cases the orders were confirmed well in time, however. In addition, many order's confirmation was postponed to the next day. This can be due to back office work taking too long, or if the order was received late in the day, as the office hours end at 15:00.

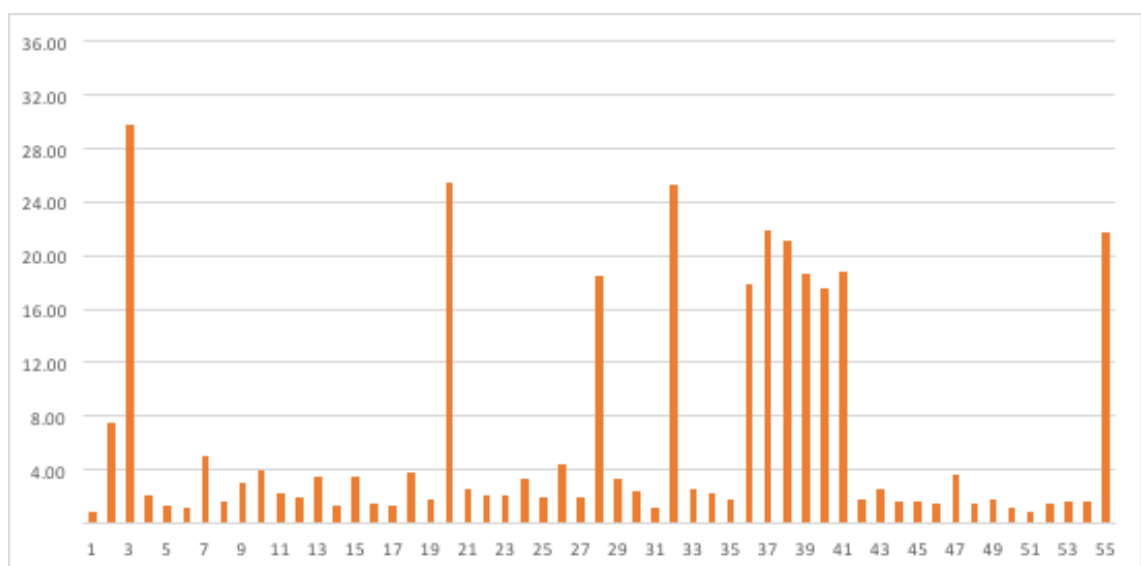


FIGURE 8. Complete time used by the front office for 55 orders, in hours.

The work process for front office is, as presented in an earlier chapter, comprised of the following parts: receiving an order from a customer by email or phone, creating a sales order into SAP from this information, waiting for the delivery confirmation from the back office, and sending the order confirmation back to the customer. An analysis and more detailed description of these parts is presented in the following chapters.

4.1 Receiving an order from the customer and creating an order into SAP

After receiving an order from the customer, the first step is to create an order into SAP, so that the back office can then proceed to create a delivery for it. The average time to create an order, based on the 55 recorded orders is 59 minutes and 26 seconds. Most of the time however, creating an order is a lot faster – the median time is only 9 minutes. The shortest time was just 3 minutes. As always, there are exceptions and certain orders have taken a lot longer to create into SAP, increasing the average time. One example is an order, where the customer's address had to be double checked by the front office, taking over 3 hours.

In addition, there were three orders that took longer than usual due to the front office having to consult another department at the company to add more customer information into SAP. In these cases, a new contract for a product for these customers was necessary to be added before being able to create the order into SAP. This naturally took extra time. These sorts of reasons are typical for cases where the order creation time has increased.

4.2 Waiting for the delivery confirmation from the back office

After front office has created an order into SAP, they must wait until the back office has completed their part; created a delivery and a transportation order, sent it to a delivery company, and received and sent a confirmation from the delivery company back to the front office. This part takes the longest on average. The average waiting time for the 55 recorded orders is 3 hours and 41 minutes, and the median is 1 hour and 29 minutes.

Comparing this to the previously analysed recorded work of the back office, comprising of 162 orders, where the average complete time used was 4 hours and 37 minutes, and the median was 59 minutes, it is safe to say the numbers correlate each other quite closely, even though the amount of recorded orders is different. This data gives quite a good impression of how long in general the front office has to wait for the back office.

4.3 Sending the confirmation back to the customer

Final part in the work of the front office is to send a confirmation to the customer, after receiving a confirmation from the back office that the delivery is in order. Confirmation is usually received through email, but in many cases, especially urgent ones, the back and front offices are in touch with each other through Skype, a messaging platform. This confirmation should be sent to the customer within 24 hours from the customer's order, and it includes information such as the estimated delivery date.

The average time it took to send a confirmation to the customer after receiving a confirmation of delivery is 1 hour and 27 minutes, and the median is just 21 minutes. There are three orders where the front office has received a confirmation from the back office but has not sent the confirmation to the customer until the following day. While these orders have all been confirmed early in the morning, they still increase the average. It is safe to say that this part seldom takes longer than an hour to complete, as the median is very low.

4.4 Where can waste be removed?

Below is illustrated the combined times taken by all parts of the front office's work. It is clear that the majority of the front's work consists of waiting for the back office to complete their part, which in turn is comprised mostly of waiting for the delivery companies to do theirs, as seen in chapter 3.4.

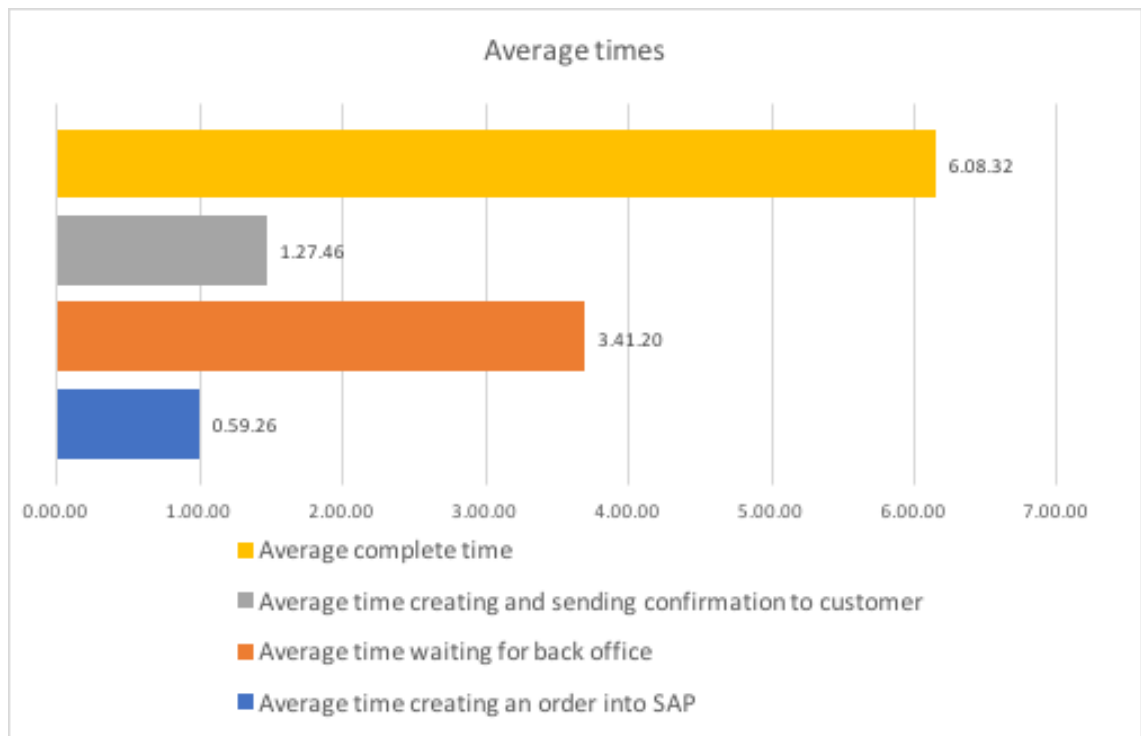


FIGURE 9. Average times used by the front office for the 55 recorded orders, in hours

Interestingly, when comparing to the back office's work from the previous chapter, where it was found that the vast majority of back office's work seemed to consist simply of waiting for the delivery company's response, the front office's work seems more varied. In the graph (figure 9) it can be seen that the average time waiting for the confirmation from the back office accounts only to just over half of the average complete time. The other average times, creating an order into SAP and sending a confirmation to the customer, are much more pronounced compared to the back office's work, where the other average times were minuscule (figure 7). In front office's case the other average times are more equal, meaning that the front office work is more varied than the back office's. The front office also has to consult other departments more.

The shortest time is taken by the part where front office receives an order from a customer and inputs it into SAP. Comparing this to the back office's equal, noticing an order in SAP and creating a delivery for it, it seems to take almost three times as much time on average to create an order than a delivery. It seems that either this part is more complicated, or possibly, the front office's work is not as optimized, for example by utilizing fast methods such as keyboard shortcuts and memorized sequences in SAP. Not utilizing these is a *waste* that should be minimized.

The last part of front office's work, sending the confirmation to the customer, takes the second longest on average. This data is calculated from the moment the back office has sent their confirmation to the front office. This confirmation comes usually as email, and it might not be noticed immediately. After receiving this confirmation, the front office writes an email including an attachment of an output taken from SAP to the customer. Usually it does not take long as the median is only 21 minutes, but some longer orders exist, and they are raising the average time. These include the three recorded orders that were confirmed by the back office on time but were not confirmed to the customer until the next day. If these could be done on the same day, the average would be much closer to the median.

For the longest taking part, waiting for a confirmation of delivery, the front office cannot do much as it is wholly dependent on the back office's performance. After the consolidation, this part becomes part of the front office's responsibility. A following chapter will tell if any time has been saved by leaving it in the hands of the front office.

Ultimately, the most important part is that the order be confirmed for the customer within 24 hours, and that the customer receives what they want on time. This *value* has not been delivered to the customer in three cases out of 55, or 5,45% of the cases. There is only one recorded note regarding one of these problem orders, and it concerns a problem with the customer's contract, which might explain why it took longer than usual. All of these three problem orders also seem to have taken very long in the back office, and in their work, this is related to the tardiness of the delivery companies. All three orders used different delivery companies, so no fingers can be pointed at a single party.

4.5 Analysing combined back office and front office work before consolidation

In addition to the previously analysed separate work of the front and back offices, there is another analysis to be done of their combined work. The combined work of back office and front office has been created by combining the previously analysed 162 back office orders with the 55 front office-handled orders, that can be cross-referenced with the former. There are 52 cross-referenceable orders in total.

By cross-referencing it is possible to see how long it took for the back office to notice an order made by the front office, and how long does it take for the front office to notice a delivery confirmation sent by the back office. This noticing time is waste, that consolidation aims to remove.

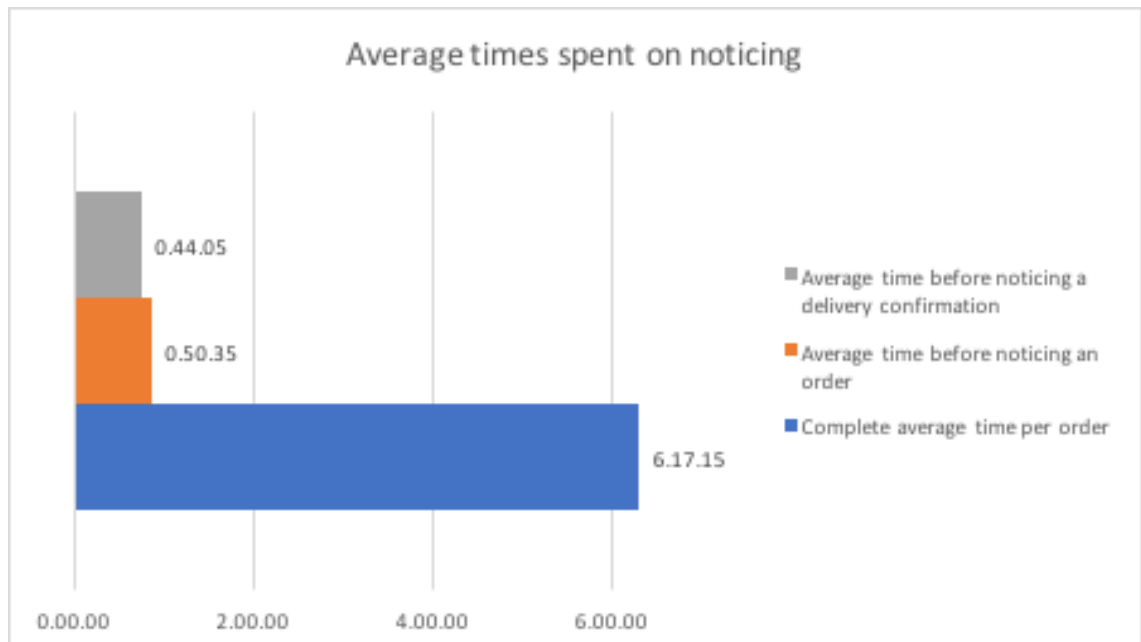


FIGURE 10. Average times spent on noticing by the front and back offices, in hours

It took 50 minutes and 35 seconds on average for the back office to notice an open order in SAP, and the median is 22 minutes and 30 seconds. The longest time recorded is 16 hours and 29 minutes, however this is due to the order being made by the front office very late on the previous day, and back office had already gone home by that time.

Conversely, for the front office to notice a confirmation of delivery sent by the back office, the average time is 44 minutes and 5 seconds. Orders that have been postponed to the next day increase this average as well – the median is only 1 minute.

When looking at these 52 orders, the average noticing times amount to a considerably large part of the entire process. From the complete average time taken by an order, the back office's noticing time is 13,2% and the front office's noticing time is 11,7%, in total 24,9%. By removing the back office from the process through consolidation, this noticing time is removed entirely, resulting in less *waste*.

5 ANALYSING FRONT OFFICE WORK AFTER THE CONSOLIDATION

After the consolidation began at the end of September 2017, the work of the new combined front and back office, which is hence forth referred to simply as the front office, has been recorded by the two front office employees. This recording took place from October 5th to 27th, 2017, and gave results of 59 orders from the first employee and 39 orders from the second employee, totalling 98 orders.

The following parameters were recorded: when the order was received, when the sales order was created into SAP, when the transportation order was sent to the delivery company, the delivery company's identity number, when the confirmation of delivery was received from that delivery company, and lastly when the order was confirmed for the customer. From this data, the average time taken by each order was calculated.

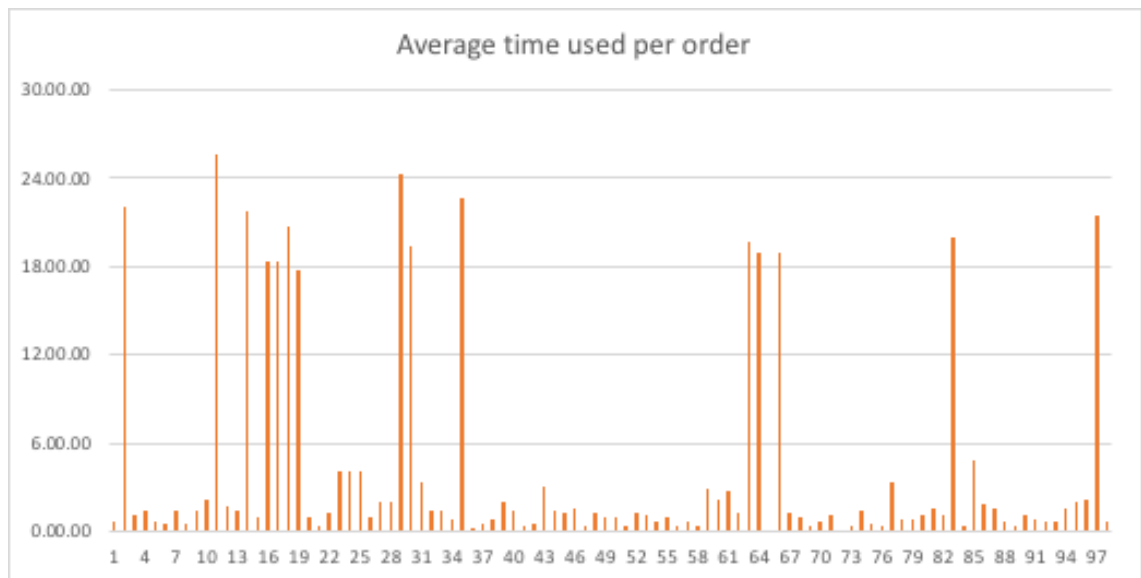


FIGURE 11. Average time used by the front office for each of the 98 orders, in hours

Once again, there are orders that have taken slightly above 24 hours to complete, but there were only two such orders, amounting to only 2,04% of the total. The complete average time used per order by the front office is 4 hours and 15 minutes, and the median is at 1 hour and 15 minutes.

5.1 Average time and median time after the consolidation

Overall, the complete average time used per order by the front office has lowered considerably – it is only 4 hours and 15 minutes, with the median at 1 hour 15 minutes, compared to the pre-consolidation complete average and median times of 6 hours and 8 minutes, and 2 hours and 24 minutes, respectively (figure 12). This is a drop of nearly 31% in average, and nearly 48% in median time.

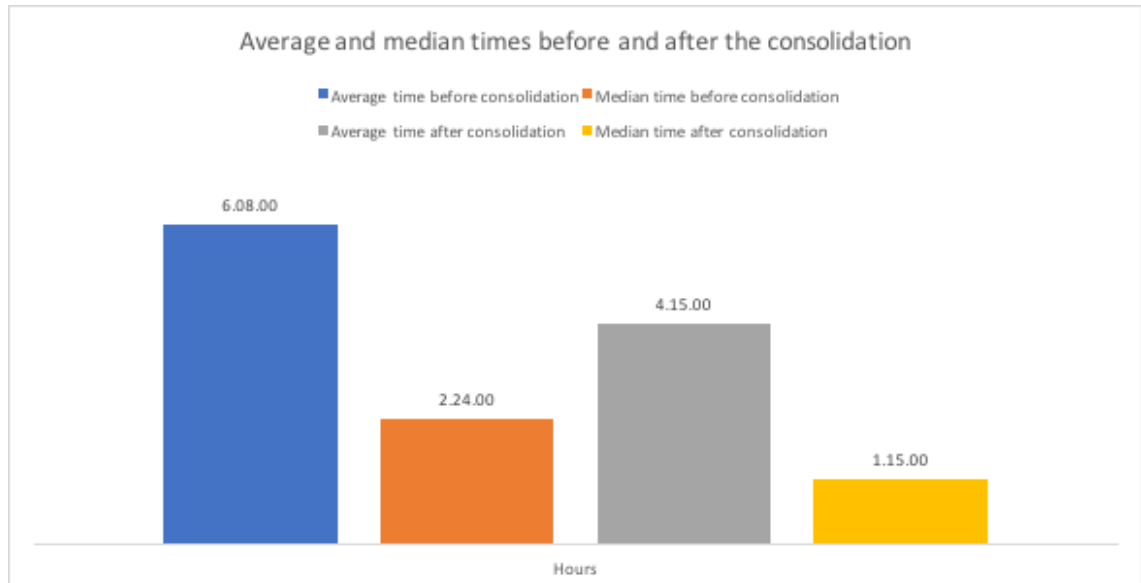


FIGURE 12. Average and median times used per order before and after the consolidation by the front office.

It can be seen immediately from the graph (figure 12) that removing the back office from the process has helped considerably, as evidenced in chapter 4.4, where it can be seen that the front office used on average 3 hours and 41 minutes simply waiting for delivery confirmation from the back office. The old average time included things such as the time wasted to simply noticing an order or a message from the back office, which used to take combined one hour and 34 minutes, or 24,9% of the total time on average. Overall, this is a major reduction in time.

5.2 A second look at the delivery companies

Now that the front office is working directly with the delivery companies, it will be interesting to see if their performance has changed. The front office has dealt with 11 de-

livery companies as before, however, one company, 303073 has not been used, but instead another company, 346095 appears on the chart for one order. Below are presented the number of orders for each delivery company based on the 98 recorded orders.

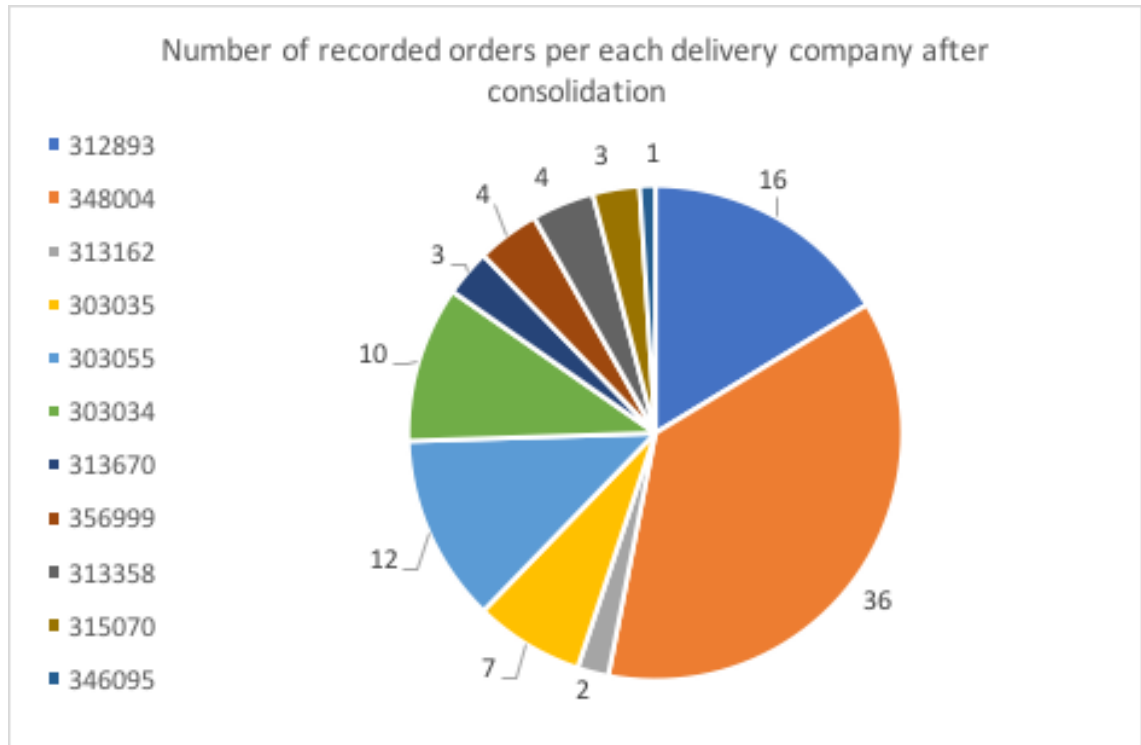


FIGURE 13. Number of recorded orders per each delivery company after consolidation

If compared with the previously shown data from the back office's work in August-September, the ratio of the amount of orders per each delivery company has stayed approximately the same – company 348004 is still in the lead with over one third of the orders being handled by them, with companies 312893, 303055, and 303034 being the next most used companies. The average time used per order for each of the delivery companies is presented below.

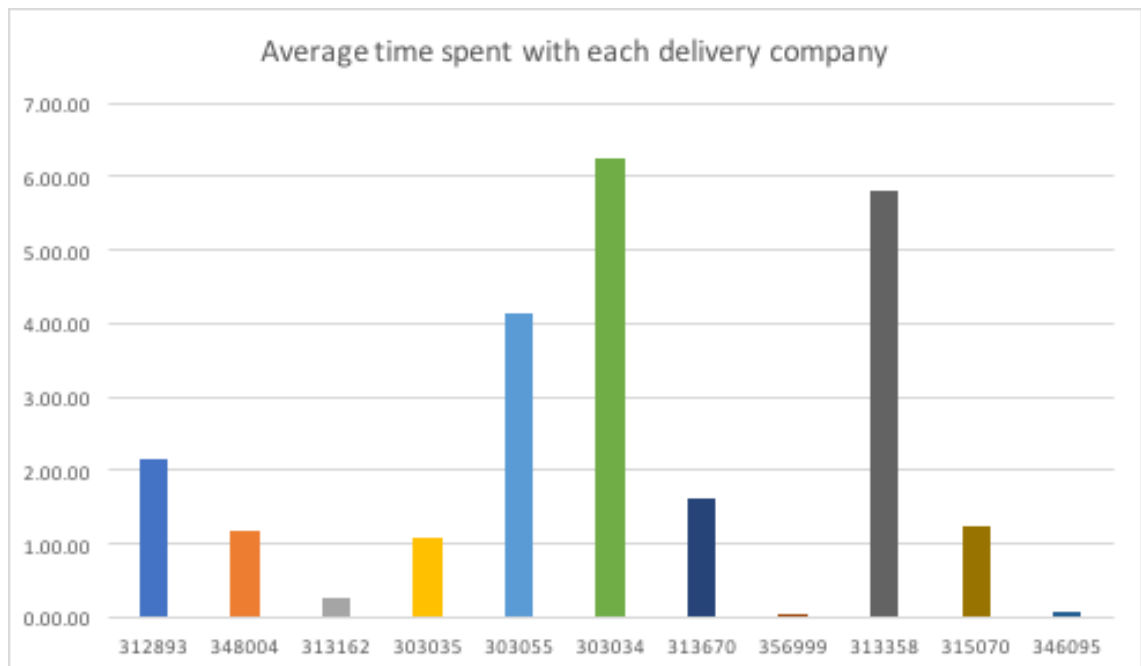


FIGURE 14. Average time spent with each delivery company, in hours

It seems also that the average time spent with almost every delivery company has decreased. Compared to the back office data analysed earlier, this average time has decreased in part due to there not being recorded orders where the time had spanned multiple days, unlike previously where there were two of such orders. Whether such orders existed in this time and were simply not recorded is unknown.

However, this only explains why some of the companies' average times have decreased. It is possible that front office has done a better job at communicating with the delivery companies, or the companies themselves have done better this time. In addition, while there are still many orders where they have been confirmed only on the next day, they are spread more evenly among the companies, making the delivery companies performance more equal. And just as presented in the previous chapter, the median times are quite close to each other.

Same company has the highest average time as before, 303034, standing at 6 hours and 14 minutes. Second highest average time is with company 313358, which curiously was previously lower than average. On the other hand, company 303035 was this time very fast with their responses, whereas previously they were the third slowest company by average. Third highest is company 303055 which previously had the fourth highest average, so there is still some correlation with some of the companies earlier recorded performance.

5.3 Front office's feedback after the consolidation

A survey was sent for the front office concerning their thoughts regarding their work before and after the consolidation. This survey had five open-ended questions to which both of the front office employees answered at the end of January 2018, after the consolidation had been underway for a few months.

The five questions were:

1. Do you feel that the workload is now too much to handle after the consolidation, as there are now more responsibilities?
2. Do you feel that your work is now more enjoyable or meaningful?
3. Do you feel that you have better control over the entire order-to-delivery process?
4. Would you prefer to go back to the old work model before consolidation? If so, why?
5. Any extra comments or suggestions you can think of, relating to the consolidation?

Both of the employees answered in a positive manner to the questions (Appendix 1). Regarding the first question about the increased workload, neither employee felt that they had too much work. As a comment, one of the employees mentioned that the work is not too much to handle because there are two people working at the front office. Comparing to the back office, there was only one employee, which was leading to extra waiting times in the process for both offices. The other employee mentioned that everything has been done within the regular working hours without rush, so there have been no difficulties in everyday work.

On the question about work enjoyment, both employees answered positively. One of them commented: "It feels more meaningful since you can be alone in responsible from the whole process. (sic)" This thought is in correlation with the earlier hypothesis and supports the whole idea of the consolidation.

The third question, about better control over the order-to-delivery process, also received positive answers from both employees, including that "it is easier to react, if necessary, and monitor better the whole process". It would seem that consolidation has made it

easier for the front office to follow the order when they are responsible for the entire process themselves.

Lastly, the front office was asked if they would want to go back to the old model, and for any comments or suggestions they might think of. The answer is clear – neither of the employees wish to return to the old model. Quoting one employee's answer: "I think the whole process goes smoother when there is one person who is responsible instead of several people." As for extra suggestions, they continue: "This change has been a good thing and it should be a permanent solution."

It seems clear that for the front office, the consolidation has only been a positive experience. Perhaps it could be implemented in other departments as well.

6 CONCLUSION AND DISCUSSION

This thesis researched if the consolidation of the front and back offices in customer service into a single unit would save time. The hypotheses were: in addition to time saved in the whole order-to-delivery process, consolidating the front and back office results in less extra time spent not working, and will save money when Kemira no longer has to employ two positions, as one can handle the entire process. In addition, front office employees will feel more confident in their work as they have the responsibility of the entire process, and it will result in less mistakes.

By the removal of *waste* such as the waiting time for the back office, and the noticing time, the complete average time it takes for the front office to confirm the customer's order from the orders inception has decreased by a large margin. Even the average waiting time for the delivery companies has gone down. According to the survey sent for the front office employees, they felt good about this change. It seems that consolidating the back office into the front office has been positive. Therefore, the conclusion and suggestion of this thesis is to continue using the consolidated model.

In the end, the consolidation and this research has been a success. This thesis was completed with ethical values and confidentiality in mind, and it feels very good to find out that the average times have indeed lowered, and when previously two jobs and three people were required, the same work is now done faster with one less employee and just one job position – just as according to the hypotheses I presented at the beginning.

However, many cases were out of scope for this thesis and hence not researched, including for example, third-party orders. It is possible that in those cases, the order completion time is not much faster than before the consolidation, as they require another party entirely to approve of the orders. Furthermore, it was not researched if the fill rate was better with the consolidation, as in whether fewer or more orders were only completed the following day, and neither were the amount of problem cases before and after the consolidation. Whether there were any problem cases which were left unrecorded in the data is unknown but probable.

If I were to conduct a similar research again, I would prefer to do one with more data from a larger time frame for larger reliability. The amount of orders recorded was slightly low. It would also have been good to include a further research topic on the number of problem orders per each delivery company, instead of only time.

How could this average time and the order-to-delivery process be improved further? One thing that could help the process be even smoother is if other companies would start using EDI system as well for automatic electronic transportation orders. As for future research topics and suggestions, it would be interesting to look into how to increase the fill rate of orders per day, and how to improve the efficiency of working with the delivery companies, such as how to communicate with them better. This might require a lot of work amongst all parties, but in the end, it could be worth it.

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APPENDICES

Appendix 1. Questionnaire for the front office regarding the consolidation of back- and front office work

It has now been a few months since beginning the consolidation of back and front office work. Please answer shortly to the following questions regarding your experiences with the subject as a front office employee. Explain answers briefly if possible. Thank you for your cooperation!

- 1. Do you feel that the workload is now too much to handle after the consolidation, as there are now more responsibilities?**
- 2. Do you feel that your work is now more enjoyable or meaningful?**
- 3. Do you feel that you have better control over the entire order-to-delivery process?**
- 4. Would you prefer to go back to the old work model before consolidation? If so, why?**
- 5. Any extra comments or suggestions you can think of, relating to the consolidation?**

Name: