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# How to manage complexity within Gefa International AB

With a focus on documentation and supply chain

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# **How to manage complexity within Gefa International AB with a focus on documentation and supply chain**

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**Master Degree Thesis**

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## Abstract

Due to the high competitive nature of the fashion industry, it is essential for businesses to have precise and update information regarding its orders from every part of the supply chain. However, in nowadays conditions, when manufacturing process is outsourced worldwide, but lead times tend always to become shorter complexity of the supply chain has increased significantly that makes very complicated to ensure good visibility, communication, and coordination through the chain. The aim of this thesis is to find the way of managing complexity within Gefa International AB, located in Sweden, by improving its documentation and reorganizing the supply chain. By analyzing the company's organization three main problems have been identified as: lack of the technical department, presence of intermediaries between the focal firm Gefa and manufacturers, and finally the current modification of the computer system Pisa that does not allow using developed set of documentation in the appropriate way. Two suggested solution should solve these problems and improve performance of the company. First, it is proposed to exclude intermediaries from the supply chain and to add one more work place in the company for the technical assistance. Second, it is necessary to adapt current computer system to the developed set of documentation. These solutions require additional expenses. However, preliminary calculations show that it could be covered by the economies on the middlemen's interest.

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# 1 Background

## 1.1 Introduction

Product development brand supplier is a part of the wholesale segment which is located between manufacturer and retailer segments. A product development brand supplier's activities are mainly related to design and product development of fashion collections, purchase and production, sales and customer service, marketing and distribution. There is a variety of product developing brand suppliers in the fashion industry, such as Gant, Nike, Diesel, Filippa K, J.Lindeberg, etc (Heden, A. McAndrew, J., 2006). Gefa AB which is the case study for the current paper belongs to this group as well.

Representing a part of a wide network wholesalers usually try to build as simple supply chain as possible, avoiding additional links such as middlemen. However, buying the bulk of a style and distributing it in smaller parts to the retailers, wholesalers act as middlemen as well (Zatland, S., 2008). The question is how to manage this tricky network of designers, raw material suppliers, manufacturers, marketers, retailers, different agents, etc. Having a wide range of activities it is essential for the brand supplier to define clear boundaries of its performance and to limit the network of partners and suppliers according to this. This research tries to find a way of successful managing of such a complex supply chain by taking as a case study Swedish product developing brand supplier Gefa AB.

Gefa International AB in Tranemo, Sweden, is a product development brand supplier which consists of the design and purchase offices. All administration, logistics and control over shipping and quality is run from the office in Tranemo as well (Gefa AB, 2011).

The company has its main production in Latvia, but it exists as a separate company. Gefa AB also produces its styles in Pakistan, India, Bangladesh, China, Laos and Vietnam. Company works with CMT price model with Latvian supplier only, and with the rest of suppliers with Full price. However, the company does not often work with the Asian suppliers directly, but uses the services of intermediaries that increase significantly costs and lead times (Jarl, R., 2011).



**Figure 1:** Logos of the Gefa's brands

Gefa AB has many different brands, such as Lobster Golfwear, Gefa Herr, Gefa Dam, Jarl, Sally O, and Hot Holiday. This is a very large range of brands for such a small company. However, the company is in the process of reorganization at the moment. CEO has made decision to cancel two mail brands Jarl and Gefa Herr that were not profitable but made the work of the all departments

much more complicated. Jarl for instance had only men's trousers with a huge variety of sizes, colours and styles. This complexity of orders created additional problems for the producers, and at the same time it was very difficult to sell only trousers without the set, such as shirt, jacket and etc. (Selinder, J., 2011).

The company works with the customers in Sweden, Norway, Finland, and Denmark. Being relatively new for the company the Denmark market has become essential in the very short period of time, therefore the company is going to expand the market in this country.

The current research represents the analysis of fashion wholesalers supply chain complexity and the role of middlemen in this chain by considering Gefa AB as a case study. It also investigates organizational problems of this company.

## **1.2 Problem statement**

Gefa International is a product developing brand supplier, located in Tranemo, Sweden. Being a small company it did not have standardized purchasing documentation. Three designers of the company described new styles and developed all connected with it technical documentation in their own way that confused suppliers and provoked a lot of additional questions that affected efficiency of the work process. There were two main difficulties in the development of the unique purchasing documentation: first, the very rich assortment (outerwear, jeans, knitwear, pants, blouses, dresses, etc); second, plenty of computer systems, in which different departments work.

During the previous actual research (field study) the unique technical documentation has been developed (see Appendix 1 and 2). However, it is impossible to implement this documentation in the proper way due to the existing supply chain. Supply chain of the company includes intermediaries (agents) between the company and suppliers that entails not sufficient control over the suppliers. The company cannot entirely control the whole production process that often leads late deliveries and problems with quality. Furthermore, the designers often cannot communicate with suppliers directly, consequently the main meaning of the technical documentation is lost. This documentation has made only internal work of design department more efficient, but it cannot significantly improve communication between the company and its suppliers due to the presence of middlemen. However, even internal work can be further improved. Developed set of documentation now is fragmented. Different parts are used in different programs, since the complete set has to be sent to the suppliers as a united general document.

## **1.3 Previous work**

This part describes the objectives and result of the field study at Gefa AB which are connected with present research.

### **1.3.1 Objectives of the field study**

I have been taking the Field Study course, which is the part of the Applied Textile Management programme at the Swedish school of textile. The field study took place at Gefa International AB Company. This company is a product developing brand supplier based in Tranemo, Sweden. The main objective of the field study was to develop uniform purchasing documentation and technical description of new samples for the suppliers. However, during the field study new objectives had been added, such as development of the packing instructions and Full Price model contract between the company and its suppliers. This package of documentation should have been improved work efficiency inside the company and collaboration between the company and suppliers.

### **1.3.2 Developed set of documentation**

Developed set of documentation consists of three main documents: purchasing instructions, packing and transportation instructions, and the model of Full price contract.

In order to create the unified purchasing instructions firstly were studied all documentation and instructions that designers use at the present. Documentation for different styles covering all wide assortment range of three designers was examined. Making sure that all designers work in different way I defined strong and weak points of every type of documentation. The strong point of one designer, for instance, was that he used a lot of graphics, pictures and illustrations instead of verbal description of the model. On the other hand there was a lack of information in colours instructions in his documents, but was better presented in the documents of other designers.

The next step was to define the list of information that has to be presented in this unified documentation. This is one of the most important and hard issues because if the company provides too much information in its instructions suppliers usually do not read it carefully due to lack of time. It becomes easier for them to ask questions instead of reading long instructions. However, if the company provides not sufficient information about the style it provokes even more questions from the supplier. All additional questions and negotiations entail waste of time and increase possible mistakes. That is why very important to provide adequate amount of information: sufficient for the production process, but not excessive.

The following list of information was elaborated and approved by designers:

- Primary information: season, collection, style, name, quality, article, designer
- Sample order: quantity by colours/sizes, delivery dates
- Colours instructions
- Washing information
- Technical drawing
- Measurement list

- Style description
- Embroidery/print instructions
- Bill of materials and labels
- The date of the last modification

The final step was to create the form that could include all this information being easy to read for suppliers and easy to complete for designers. The trial version was done in Microsoft Office Excel document, but the final work version has to be done in Corel Draw connected to Pisa system (see elaborated purchasing instructions in Appendix 1).

For new packing and transportation instructions existing already instructions of the Gefa Company and also instructions of other clients the company works with were studied and analyzed. This type of instructions must be general for all types of clothes. It must be updated every season and sent to suppliers once a season. The existing system of sending packing instructions with every style description leads waste of time, overconsumption of printing materials and decrease attention of user to these instructions.

During the work on this set of documents I studied work of the warehouse and European standards of shipment. Moreover, I created the assortment's scheme for different brands in order to cover all types of styles that company offers. The following list of data and documents were analyzed and elaborated for these instructions:

- The optimum size of the cartons
- New form of the packing label for the carton
- The optimum size of the plastic bags
- New system the size marking

The all needed packing and transportation information is provided in new instructions. It includes description of the packing in cartons, plastic bags, example of new elaborated packing label, and size-scale instructions (see elaborated packing and transportation instructions in Appendix 2).

Due to the fact that Gefa International AB works mainly with the Full price, for elaborating the model of this type contract I have studied the real CMT price contract between my ex employer (Italian knitwear company Steaua Reds) and one of its clients, and have modified it into conformity with the Full price work model. The parts which have been modified describe:

- Phases of the work and price
- Samples
- Raw materials and accessories
- Technical assistance

- Restraint of production

The rest of the parts remain without any changes being a part of the standard contracts of this sector.

Developed document (see Appendix 3) represents the work version of the contract. It has to be revised and refined by the financial director in the parts which are connected with the payment, price and customs documentation.

### **1.3.3 Conclusions and future research suggestions**

Documents from different areas of the company's work have been developed during the previous actual research. All these documents have been developed with the aim to improve efficiency of work both suppliers and Gefa's employee and decreasing lead times. Standard purchasing instructions allow decreasing significantly time of the style description for the designers and facilitating the process of the samples' production for the suppliers. General packing instructions which are sent once a season decrease amount of documentation for every style and help to avoid possible mistakes in packing. Finally, the model of Full price contract is the first step to exclude middlemen from the supply chain increasing control over the production and delivery dates and decreasing costs and lead times.

All these documents have been elaborated in accordance with the existing company's problems and have been approved by the company's CIO. Elaborated purchasing and packing instructions have been partly introduced in the work, but the contract still has to be finalized by CIO.

The work of design- and purchasing departments has become more efficient. However the communication between suppliers has not been improved significantly. The main obstacle is intermediaries the company work with. Due to the fact that the company's supply chain includes middlemen, it is not often possible to communicate with suppliers directly. This circumstance does not allow using all of developed documentation's advantages as efficiently as possible. Providing the full package of well structured information directly to the supplier has to decrease lead time and to reduce possible future questions and mistakes that almost impossible to achieve working through intermediaries.

The future research could analyze existing company's supply chain, define its weaknesses and develop a new model of supply chain that would make the Gefa's work more efficient using developed already tools in the proper way.

## **1.4 Purpose**

The aim of this thesis is to solve current organizational problems within Gefa AB and to improve effectiveness of the company's work by making analysis of the current complexity of

documentation and supply chain at the Gefa Company and developing of a new business model which will allow using developed already tools in the most efficient way.

## **1.5 Research question**

The main question of the current research is:

*How to use tools that have been developed during the field study in the most efficient way?*

In order to answer fully this question it has to be divided in two parts:

- How to improve existing Gefa's supply chain in order to make it more efficient using developed in the field study tools?
- How to reduce complexity of Gefa's computer systems?

## **1.6 Delimitations**

During the current thesis project I am going to analyze complexity within the company, focusing on the existing purchasing documentation and the supply chain and to find the way how to manage such complexity. The work will include finding the way of implementation of the developed earlier standardized set of instructions and purchasing documentations in accordance with the computer systems that the company already has. Furthermore, I am going to analyze existing supply chain of the company, to define the strengths the weaknesses of it. According to this analysis I will propose improved supply chain which will include more efficient control over the work process.

## **1.7 Outline**

This thesis report consists of six chapters, references, and Appendixes. Chapter 1 is the introduction part of the performed thesis work. It provides general information about Gefa AB which is the case study of the current research, describes the purpose and results of the previous work, and the purpose of the current research. It also defines research question and delimitations. Chapter 2 gives a brief background of supply chain in fashion retailing, focusing on its complexity and agility. It also presents the study of the ways of managing of this supply chain. Further the role of middlemen and technical documentation in the fashion supply chain is investigated and described. Chapter 3 presents the methods used to perform the presented research. It explains the reasoning for this work and the work process. Chapter 4 represents the results. It describes Gefa's structure, current supply chain, used documentation, and diversity of computer systems. Furthermore, it outlines defined problems in the described spheres. In Chapter 5 obtained results are discussed. It presents the analysis of defined problems and proposes solutions, focusing on the supply chain and documentation. The conclusion follows in the last chapter.

## 2 Theoretical frame of reference

### 2.1 Supply chain in fashion retailing

#### 2.1.1 Complexity within modern supply chain

In the recent past production was carried out within the same country or even the same factory. It was much easier to follow orders and to identify and quickly solve appearing problems at that time. In nowadays conditions when manufacturing process is outsourced worldwide, but lead times tend always to become shorter good visibility, communication and coordination are necessary for survival and further development (Hinton, A., 2011).

Complexity is the synthesis of the different systems. According to the M. Gerschberger the appropriate definition of the system for the field of supply chain management and value networks *“borders from a complexity perspective is a critical success factor that enables controllability”* (Gerschberger, M. & Engelhardt-Nowitzki, C., 2010).

Besides design issues complexity includes also all other factors that do not add customer value to the product or service. Many companies try to attack complexity through product range rationalization, standardization and reduction of promotion (Christopher, M., 2000). Organization structures and management processes of the traditional functionally-based business cause complexity as well. That is why the Business Process Re-engineering movement emphasizes the importance to exclude all non-value processes from the production cycle.

The first step is to re-group value-creating processes. Further it is necessary to set up multi-skilling and cross-functional working of the personnel. It is a part of the team-based management which is a very effective approach for improving the organizational agility (Christopher, M., 2000).

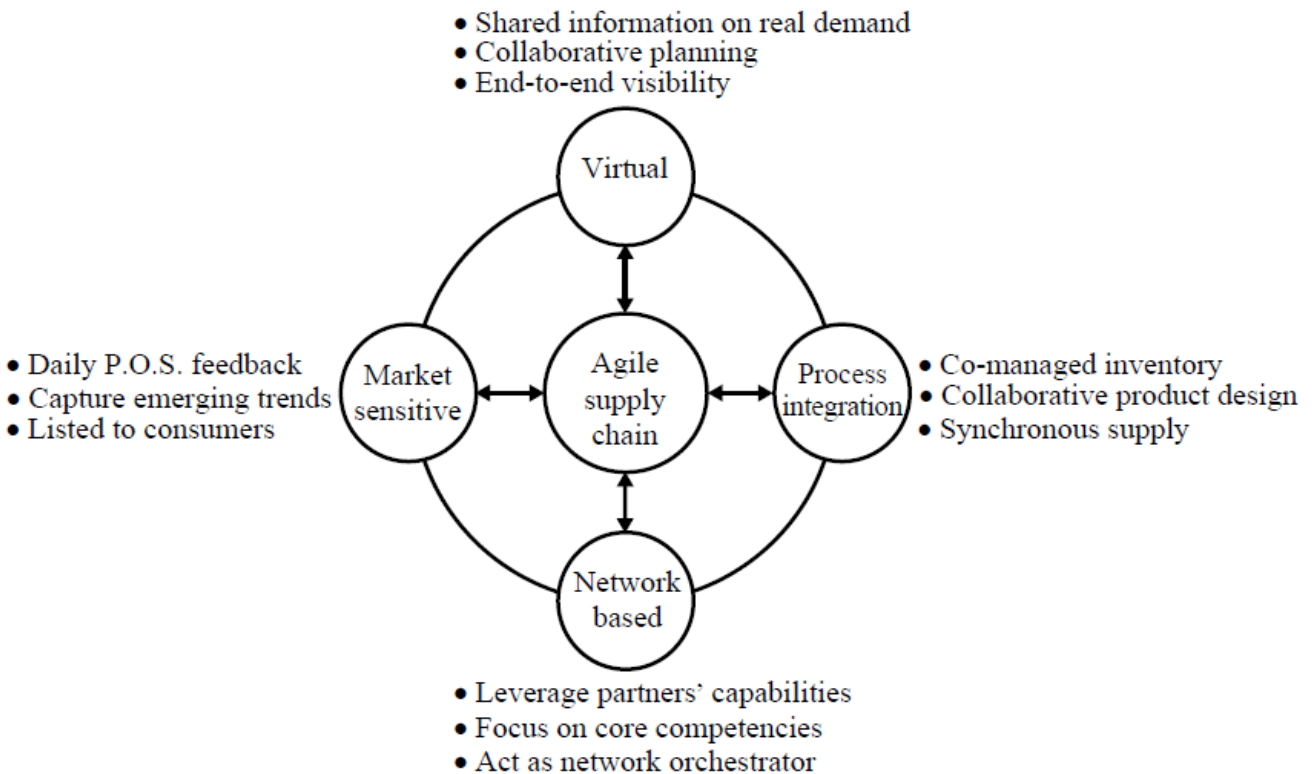
Despite all complexity of a variety of unconnected systems in fashion industry many companies are still able to carry business using for example a business (ERP) system to manage transactional activities, which include purchase and sales orders, inventory management, etc. There are different systems which allow covering various elements of the supply process, but all of them are not sufficient for the efficient work in present conditions. However, one of the most important factors of a successful business is to find the way of managing the whole supply process efficiently in order to know the status of the order and its position in the supply chain (Hinton, A., 2011).

It is important to reduce complexity to the right level in order to ensure steerability, but not to reach incompatibility for being able to meet the customers demand. One more difficulty is that there are no straight borders between the chains of the system. Each company has its own opinion

about the key players of the chain. The essential question for any decision maker is: “How could I define my supply network borders appropriately in order to reduce complexity to a manageable degree and to come to advantageous decisions for my company’s business?” (Gerschberger, M. & Engelhardt-Nowitzki, C., 2010).

### 2.1.2 Agile supply chain and its risks

Effective management of agile supply chains consists of key elements which are presented in the fundamental framework of agile supply. This framework has been developed by Harrison in 1999 and supplemented by Christopher and Lee in 2004 (see Figure 2). The main characteristic of agile supply chain is to be sensitive to the market. Using marketing tools, such as daily point-of-sale data, monitoring demand, etc, the company can be aware about the last tendencies of the market and potential market requirements. Often to satisfy these requirements a wide supply network with rich variety of products is needed. This can be achieved only through the wide-supply base. The main task for the competitive manager is to orchestrate individually the complex network of suppliers and to use individual suppliers with the strongest competitive advantage. Successful management of the wide network is associated with integration and partnership relations. This approach helps to improve transparency of the network.



**Figure 2:** Agile supply chain (source: Christopher, M. & Lee H., 2004)

This agile supply chain framework in general corresponds to the fashion industry, however, there may acquire some contradictions regarding the global sourcing. The key to success in the fashion market is to produce and to sell what the company thinks will be in demand. It is necessary to create and to manage flexible supply chain, adapting it to the fast changing demand and not stable supply (Masson, R. & Iosif, L., 2007).

Martin Christopher and Lee defined the list of factors affecting financial, market and chaos risk. According to them fashion supply chain lacks confidence in following factors:

- Order cycle time
- Order current status
- Demand forecasts given
- Suppliers' capability to deliver
- Manufacturing capacity
- Quality of the products
- Transportation reliability
- Services delivered (Christopher, M. & Lee H., 2004)

It is impossible to run supply chain successfully without confidence in its consisting parts. Chaos risk of the global fashion industry, expressed in complexity and uncertainty, can lead to excessive response, unnecessary interference, second guessing, mistrust and distorted information in the supply chain that may result in market risk when changeable market demand cannot be satisfied. One of the main negative effects is the wrong stock that means big discounts on the extra products and missed profit from the absent but salable goods (Christopher, M. & Lee H., 2004). The other factors of risk occur when all responsibility for the outsourced production lays on the third part. If this third part, key supplier or intermediary, is not reliable this can lead to very serious consequences. Therefore, the ability to minimize supply chain risks and to manage its complexity is one more characteristic of the agility.

## **2.2 Ways of successful managing of supply chain**

### **2.2.1 Leveraging supplier relations**

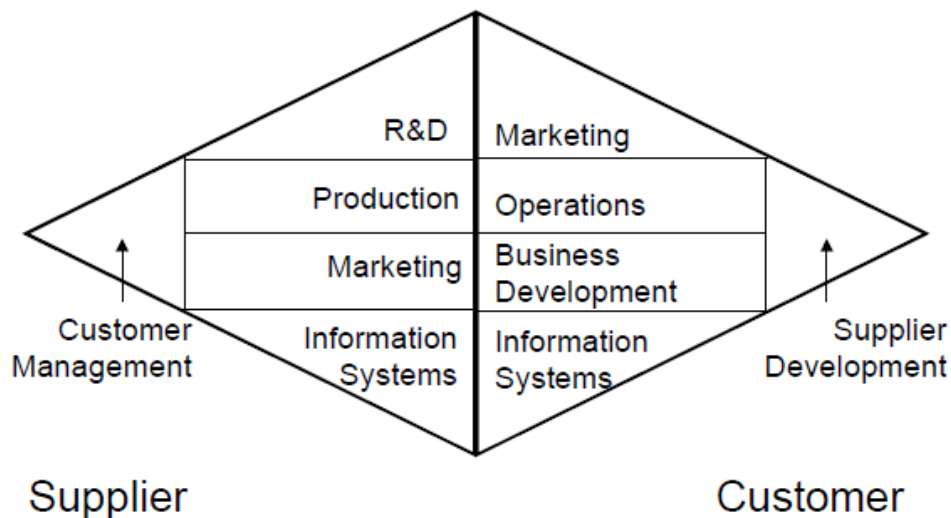
Quality of supplier relationships is one of the most important issues in achieving agility in the fast changing fashion market. Often lead times of negotiation process with suppliers are too long that does not allow responding quickly to changing demand. It is connected with the product development process, making agreement about prices and delivery dates, etc. In order to achieve better agility through the closer relationships with supplier some pre-requisites have to be handled (Christopher, M., 2000).

As it is shown on the figure 3 the first step is to rationalize the number of strategic suppliers. It is impossible to improve agility having a too wide range of partners. It is important to define rational amount of suppliers that could synchronize their production with the company's requirements. Concept of vendor managed inventory helps to establish paperless, information-based relations. Alive communication makes links between buyer and supplier much stronger and more competitive.

The high level of shared information is the second pre-requisite. Downstream demand must be as visible as possible. The information about the customers demand has to be clear up to suppliers and to go back by upstream flow.

The high level of "connectivity" between the company and its suppliers is one of the most important pre-requisites. It is more than just the share of information in both directions. It implies multiple collaboration process at all levels. Supplier development teams become more and more common in the modern companies. These teams are cross-functional. Their main duty is to collaborate with the same tams from the suppliers' side. This organization ensures full and quick exchange of all necessary information. Figure 3 represents the concept.

Ron Masson agrees that collaboration and partnership in fashion industry is a good approach. This helps to synchronize supply in the chain and to manage inventory more efficiently by providing all necessary information in the right time to all suppliers.



**Reducing complexity to enhance agility**

**Figure 3:** Building stronger partnerships through multiple links (source: Christopher, M., 2000)

However, working in the fashion global supply network with huge variety of skilled and low cost suppliers it is quite easy to find those who conform the high requirements. Consequently, the long-lasting relationships are not so vital for this fast changing field. A wide range of products requires wide range of suppliers, and constantly changing fashion requires often changing suppliers in the network. That is why complexity of the fashion supply network is so high (Masson, R. & Iosif, L., 2007).

Different authors agree that adaptability of the supply chain depends on its complexity. Besides the variety of suppliers, a short life-cycle of fashion products increases it as well. If to add different cultural background of key payers (or partners), financial, customs, and possible political arrangements, then it becomes almost impossible to manage efficiently such a chain.

Tony Hines and Pauric McGowan stress difficulties in the process of fence-mending between buyers and retailers due to the different interests in the business. They developed Top ten of expectations from the partnership relations for fashion retailers and contract suppliers. The list below provides buyer expectation versus contract supplier:

#### **Retail buyer *versus* Contract supplier**

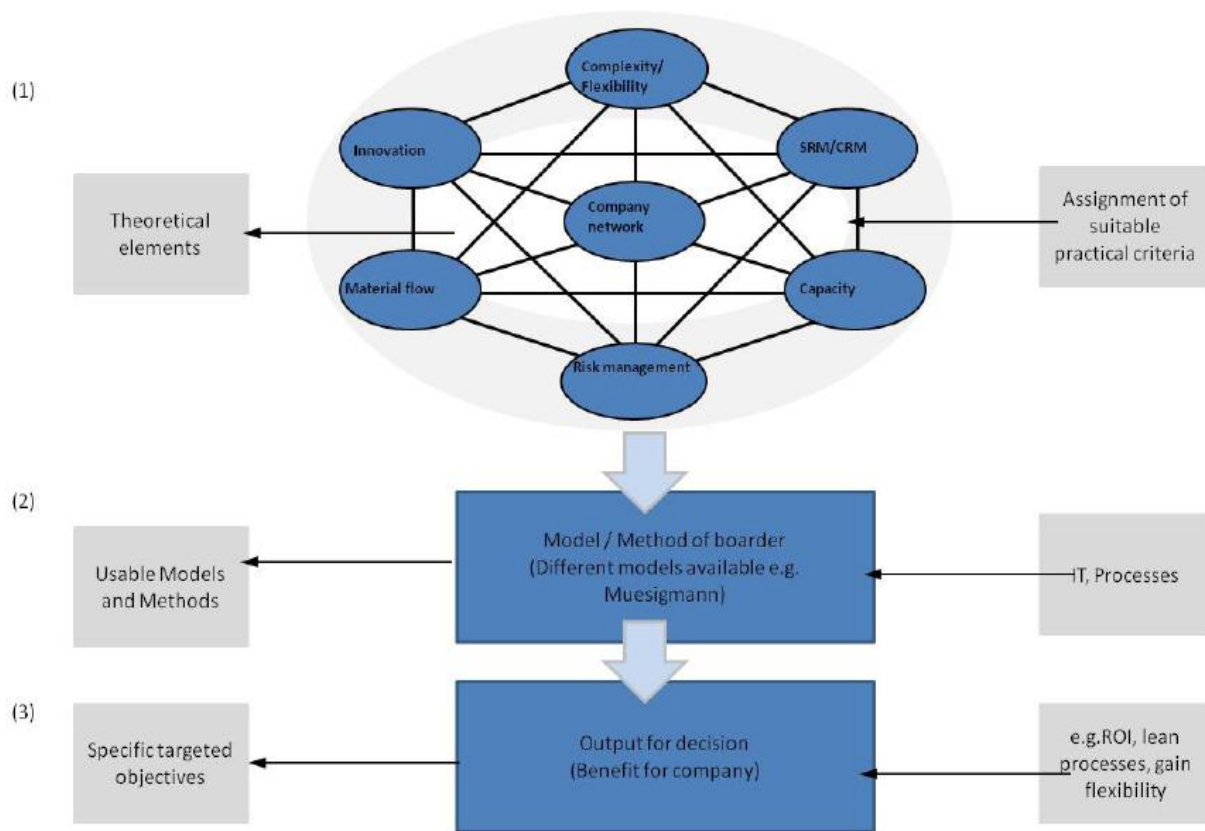
1. Low cost supplies allowing flexibility in pricing *versus* Better prices for their supplies
2. Manufacturing experience for specific retail customer (knowledge/understanding) *versus* Regular orders (e.g. maintain work flows, employment, investment etc.)
3. Offer innovative design and product development ideas that fit retail need *versus* Guaranteed cash flows and better margins
4. Guaranteed quality and technical competence *versus* Long-term agreements
5. On time and complete delivery defect free *versus* Benefit from retailers' expertise (e.g. Technical 'knowhow' or retail contacts)
6. Fast response times *versus* Balance manufacturing capacity through having better forward planning retail market information
7. Lower relational and transaction costs *versus* Lower relational and transaction costs
8. Suppliers that lower risk for the retailer *versus* Share retailer buyer economies of scale
9. Act as a co-coordinator of other suppliers *versus* Reduced risks
10. Specialist geographic/cultural knowledge in the case of overseas suppliers *versus* Market intelligence what the future holds in store (Hines, T. & McGowan, P., 2005)

This comparison clearly shows that suppliers and buyers have different priorities and interests. Consequently, the only way to keep and develop strong and reliable relationships is to make compromises. It is important to find the balance when each side of the partnership finds its interest.

### 2.2.2 Reduction of complexity

Gerschberger proposes three steps towards complexity reduction through the management decision process.

The first step (1) is to define who has to be included into the particular supply network or excluded from it. A set of criteria is needed for this process. In the theory it would be better to analyze all criteria, such as complexity, risk, flexibility, innovation, etc. However, it is impossible to implement on practice. That is why complexity has been proposed as a starting point. Out of theoretical there also used practical approaches. In order to define the correct strategy and to evaluate management initiatives are often used supplier relationship management (SRM), customer relationship management (CRM), capacity evaluation methods.



**Figure 4:** Framework for system border definition within a supply network  
(source: Gerschberger, M. & Engelhardt-Nowitzki, C., 2010)

The second step (2) is to proceed with chosen criteria. Appropriate algorithm is needed for making conclusion about possible decision. Simple grids and scoring tables are practical approaches of SRM and CMR that are used task. Finally (3), the company gets benefits from the appropriate final decision by applying selected criteria (1) using specific procedures (2). When

relevant criteria and necessary procedures are defined it is possible to estimate potential benefits (Gerschberger, M. & Engelhardt-Nowitzki, C., 2010). The figure 4, elaborated by M. Gerschberger, represents these steps in the form of a methodological framework.

Andy Hinton, business development director of Fast React Systems Ltd, provides three the most important practical approaches how to reduce complexity of the fashion retailing company's extended supply chain. First, it is integrated planning, which includes critical path, capacity and materials management. It is very important to collect all necessary information at the one single place in order to make quick and correct decisions. This information must include capacity restriction, materials availability constrains, etc to make visible full critical path. Second, it is visibility of order status with an instant warning of any problem. Finally, it is essential to build transparent and effective communication with suppliers (Hinton, A., 2011).

## **2.3 Middlemen in fashion supply chain**

There are different opinions in the literature about the role of intermediaries in the fashion supply chain. Some authors suggest that intermediaries add small value or do not add it at all; others argue that it is almost impossible to manage complexity of modern supply chain efficiently without help of middlemen.

### **2.3.1 Pro**

Since the range of new products has become larger, but quantities have decreased, more professional skills and wider global network of suppliers are needed for clothing manufacturing sector. Many fashion retailers facing with such complexities and different barriers in this business define their work as not effective or not even possible. Ron Masson and Laura Iosif suggest that *“the common norm, and of course, a practice that could eliminate most of these complexities at a stroke, was simply for the retailers to make use of third party indirect sourcing import/export agencies or what many choose to call intermediaries”* (Masson, R. & Iosif, L., 2007).

In the most cases middlemen are just agents without any manufacturing or logistics capacity but with the real access to the network of suppliers and manufacturers. They manage all downstream chain from the sourcing products from low-cost countries and delivery it to the distribution centres of retailers.

Offering technical expertise, experience and links with existing local supplier network, and entire sourcing and logistics service intermediaries provide tremendous benefits to retailers helping to overcome many aspects of complexity in this sphere. Masson and Iosif define middlemen as the key value-adding players in the fashion supply chain. They act as coordinators of the whole chain managing both material and information flows. Moreover, taking responsibility for the complete cycle from the point of orders' forming they can consolidate raw material and manufacture

suppliers, helping to discover spare capability and undertake quality control over the manufacturing process (Masson, R. & Iosif, L., 2007).

Middlemen work in different way. Some of them represent only one specific region, others work in different regions, but all them have existing and often long-lasting relationships with the local suppliers. Inasmuch as they often combine managing of multiple customers they can accomplish economies of scale even with small quantities. All of that ensure strong partnership relationships between intermediaries and retailers but not always between intermediaries and suppliers.

Taking the orders intermediaries define the range of preferable materials and manufacturing suppliers. They organize a competitive auction by giving manufacturers few days to present a proposal “package” of both lead time and price. The “best” candidate is selected on the basis of delivery dates and price. In order to ensure the best quality and price only “approved” suppliers are allowed to participate in this competition (Masson, R. & Iosif, L., 2007).

Even so, the Masson and Iosif’s studies showed that *“there was very significant global production overcapacity and price, and lead times in particular, could be aggressively driven down by the intermediaries if required”*. This practice enables agility due to the fact that middlemen may always use their spare capacities to make a quick supply on the retailer’s request.

Another less common model called “lohn model” implies that middleman sources all package of services from the supplier including purchase of all raw, sewing and package materials. In this case suppliers have to produce pre-production sample which is a part of auction process. It also allows excluding potential quality problems on the stage of manufacturer selection.

Since intermediaries usually have good partnership relations or even owe logistics organizations, they can combine small quantity orders and deliver them to the different distribution centres at one trip avoiding penalties because of small volumes shipments. They also manage complexity connected with export/import documentation, quotes and traffics, trade regulations, etc. Some of them even have additional offices in Europe to provide assistance to retailers with import/customs issues (Masson, R. & Iosif, L., 2007).

To sum up, according to the Masson and Iosif’s research intermediaries are the key value adding players in the fashion supply chain. They provide full service and take responsibility reducing significantly complexity in the spread fashion supply chain.

Steve Keifer, VP of Industry and Product Marketing for GXS, express similar views. At the first glance to “eliminate middleman” is the first step to improve supply chain responsiveness and cost efficiency. However, a new demand driven supply network requires reviewing a role of middlemen. A new kind of middlemen proves “late-stage configuration” of products closer to the end consumer. They called “postponement” specialists or “light manufacturing” providers.

Despite the name, middlemen of this new type provide a new level of product differentiation and supply chain efficiency for producers (Keifer, S., 2011).

The longer the product is kept generic for the less is the impact of forecast inaccuracies. The last stages of the production cycle, such as configuration and final packing, can be postponed until the end customer demand is defined. Due to the fact that postponement specialists act with the multiple manufacturers the level of responsiveness decreases. Many postponement middlemen offer additional post-sales service, such as warranty and repair. Finally, postponement agents are allocated ensuring better response time that provides benefits to both reverse logistics and manufacturing functions. (Keifer, S., 2011)

However there are opposite opinions in the literature as well.

### **2.3.2 Contro**

The main goal of any company is to cut expenses and to decrease lead times. There are different strategies that are used to get this goal. According to Christine Harrell the most effective way is to reduce layers, i.e. to exclude middlemen from the supply chain.

Reducing Layers strategy tends to build more efficient supply chain by cutting away a distribution centre. If goods are sent directly from the manufacturer to the store a distribution centre can be considered as an additional not essential layer. Excluding warehouse from the chain enables to deliver the product to the store at better cost and with less time. In order to implement this strategy all products have to be ready for the sale in the store, namely have to be packed in the appropriate way with all labels and tags. Suppliers must be provided with all needed auxiliaries to be able to send goods without any manual adjustments or chargeback from the final destination (Harrell, C., 2010).

According to Mike Bellamy, an expert on China sourcing, fashion retailers should go directly to suppliers avoiding intermediaries. However, there are many obstacles that retailers have to take into account.

The majority of those who introduce themselves on different trade shows as producers and offer the best service and price are often just middlemen with only loose connections and no industry experience. Mike Bellamy says: *“One was even a cab driver who carried the brochures of factories in the area and claimed to be a factory representative to any buyer that got in his car.”* The main reason of such a big number of intermediaries in China is a huge amount of money involved in the China Sourcing system. It attracts those who wish to make a “quick buck”.

Mike Bellamy defines middleman as *“an intermediary who provides little value in the supply chain, perhaps only playing match maker but building in a margin”*. Middlemen can pretend to be representatives of the manufacturer, but if buyer cannot communicate with the factory directly

it means that he/she has deal with intermediary. In the case if the middleman offers additional services, such as quality inspection, management project or logistics, then probably it has its place in the supply chain. Bona fide intermediaries separate production and service price. If the middleman are not transparent it means that their value has been greatly inflated (Bellamy, M., 2010).

The reasons to avoid middlemen as much as possible are:

- Costs: Extra layers increase costs.
- Quality: The buyer's interest is to find the best price/quality correlation. The middleman opposite tries to find the cheapest supplier to add the biggest margin that usually means the worst quality option.
- Security of IPR (intellectual property rights): If buyer does not have access to the actual production location, then it is impossible to control the using of design and branding. Even if the fact of IPR infringement or quality recall takes place, middleman, unlike the real manufacturing, can easily disappear having a few physical assets and no real equipment and actual facilities.
- Communications: Middleman tries to keep in secret the identity of actual manufacturer in order not to be ejected from the chain. Consequently buyer cannot communicate directly to engineers from the production line, i.e. those who work straightly with the product. It increases communication lead times and affect quality. This kind of communication becomes especially dangerous then some technical problems appear. Engineer team has to communicate with buyer through intermediary who does not have technical skills to explain the problem in the correct way (Bellamy, M., 2010).

All western suppliers say that “they leverage their overall buying power to help you get the best price with the factories they have pre-qualified”. However 99% of it is not true. Chinese middlemen may even introduce themselves as owners of the factory, but if buyer tries to visit the factory, different obstacles appear, for instance “the power is off”, or “let's just meet at our HK sales office” (Bellamy, M., 2010).

Mike Bellamy proposes some rules. First, is better to avoid the manufacturers who do not display the actual location of the facilities. Second, chose the factories that can prove their production experience. They should have different samples and quality documentation.

During a visit to the factory it is important to check:

- If the information from the business card corresponds to the staff's information.
- If the people at the factory clearly know buyer's contact or representative gives out business cards to factory staff during buyers first tour of “his factory”. It is possible that representative just a middleman who works with this manufacturer for the first time.

In this case it would be better for the buyer to start working directly (Bellamy, M., 2010).

Finally, very good English skills do not correlate with production experience. Often the most professional websites with wide range of products and services belongs to intermediaries. It is important to check real facilities, equipment, technical documentation, etc. There is a huge amount of professional manufacturers in China and Middle East, so it is possible to find appropriate suppliers for any sourcing program avoiding middlemen.

#### **2.3.4 Middlemen strategies**

According to Timothy D.B. Gosling the simple supply chain model (SSCM) “defines the start position, length in time and mechanisms of interaction for a supply chain containing three different participants’ types (customers, middlemen and suppliers)”.

The main aim of customer is to satisfy its requirements. For the supplier it is to sell products profitable. Finally, middleman’s aim is to get a profit by satisfying requirements of multiple customers through trade with multiple suppliers (Gosling, T., 2007).

The SSCM reflects set of supply chain problems, such as products that may be sold, the time in which the trades must take place, participants and the communication scheme between participants and the restrictions for every participant. The SSCM can be used as a model for different business scenario. Each element of this model may be carefully analyzed by itself in concert with the other elements.

A middleman problem consists of two parts: negotiations with customers according its requirements and negotiation with suppliers in order to satisfy customer’s requirements (See Figure 5). It is middleman’s responsibility to identify which customer’s requirement can be profitably fulfilled and how to negotiate with suppliers about this particular requirement. The final aim is to get a profit. The main problem of this scheme is the lack of information about products and times.

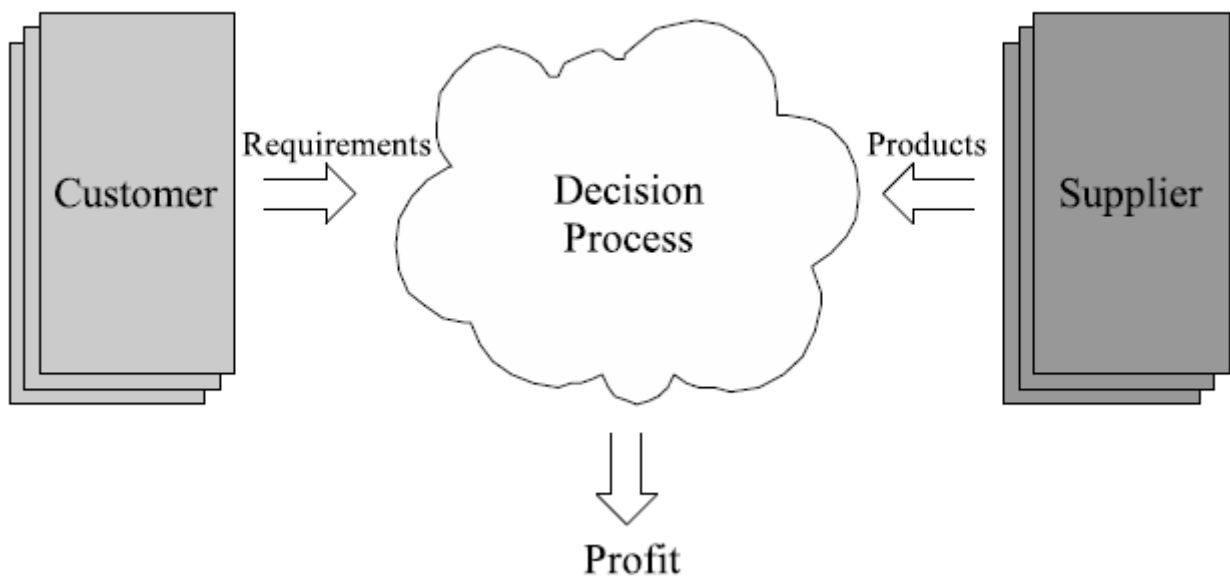
Middlemen could be considered from two sides: customer-middlemen and middlemen-supplier. The main supplier-middleman problem is *satisfiability*. The supplier-middleman has to find the way to satisfy primary requirements or to find appropriate alternative.

The main problem for the supplier-middleman is *optimization*. It is necessary to find appropriate alternative between quality and price. Two main aspects have to be taken into consideration: first, which supplier to chose, and second, in which way to negotiate with this supplier. These two types of problems are strongly interplay with each other and in combination with existing uncertainty it is even more difficult to find a definite solution. The way how this interplay is

realized influences the final result. Middleman has to manage these interactions in the most efficient way to get a maximum profit.

In order to manage complexity of SSCM the intermediary strategy must present algorithmic form. This algorithm includes the choice of customers' requirements to proceed with and the way how to do it.

The SSCM Strategy Framework (SSF) represents a frame of specifying strategies which can manage SSCM problems.



**Figure 5:** The middleman problem (source: Gosling T., 2007)

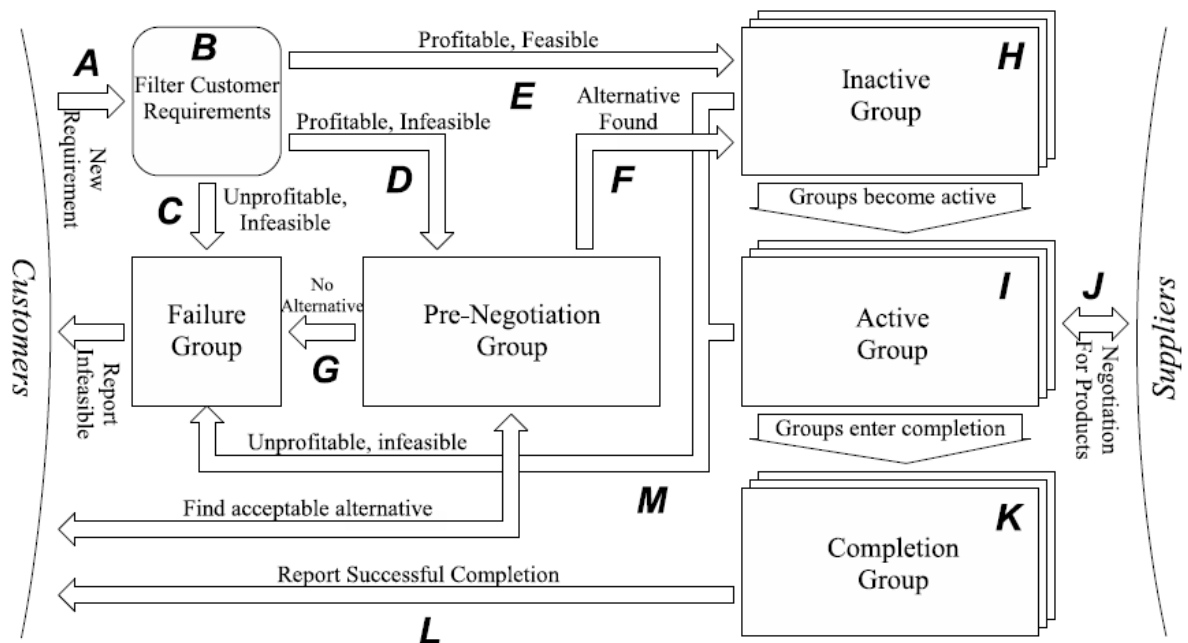
Figure 6 explains the way of how the SSF strategy works with customer requirements. The new requirements A receive and assort by the SSF into three main categories (B). All unprofitable or impossible because of lead times requirements are cancelled (C). Further, potentially profitable but implement to be implemented for different reasons requirement are sent to a Pre-Negotiation group (D). Inactive Basic Group (E) receives only profitable and possible to be fulfilled requirements.

Requirements from the Pre-Negotiation group are revised and divided into two groups. First group will consist of new alternative requirements that are possible to be implemented and acceptable for the customer. They will send to an active basic group F. The rest of requirements will be cancelled (group G).

All requirements that are going to be implemented are collected in Inactive Basic Groups (H) that later becomes active (I) the next group J is responsible for the negotiation process with suppliers. All groups may active and work with different requirements simultaneously.

The phase K is completion where all successes of the negotiation process are collected and reported back to the customers who are connected with the group of requirement L.

At this stage some requirements can be cancelled if they become evidently impossible or unprofitable (M). In the final stage some requirements can be failed if negotiation process with some suppliers stuck (Gosling T., 2007).



**Figure 6:** SSF Overview, Treatment of Customer Requirements (source: Gosling T., 2007)

## 2.4 Technical documentation

### 2.4.1 The role of documentation

Technical documentation is the set of all facts and data needed for the product development and its manufacturing. The definition of Technical documentation (TD) describes it as:

*“a system of graphic and textual documents used in designing, manufacturing, and operating industrial products (parts, assembly units, systems, and sets) and in designing, erecting, and operating buildings and structures. The technical documents for industrial products determine the type, design, and composition of the article” (Gifford, K, 2002)*

C.O. Bauer describes the importance of TD in product liability. He defines TD as a complete system which is used for different stages of a product's life cycle. TD is a part any company organization. It can be isolated only for an internal use, and also intended for suppliers, users, state commissions, etc (Bauer, C.O., 1995). TD is a very broad concept. It may include very detailed machinery instructions in the case if the design and technical group controls every step of manufacturing process, or just sketch and general requirements, if the manufacturing process is outsourced in the company with its own technical group.

Today documents are usually developed in electronic way, but it still has to be adapted to a hard copy. Documentation has to being developed during the design process or even on pre-design stage (Usernomics, 2011). The creation process of a new product is often intuitive and creative for product developing engineers that is why it is essential to have well elaborated frame of documentation in order to collect and provide for a future use all necessary information about the product. When documentation is created in different ways it may provide excessive information with too small details about the product that is not necessary for a further user, or contrary, to miss some essential for user information.

It is very dangerous to underestimate the importance of the well structured TD. If TD is designed in the not proper way it may create future mistakes, problems and time wastes during the manufacturing process, or the refuse to use the product in the case if documentation is intended for an end user (customer). This is particularly important for innovative product consumers are not familiar with. If users find instructions for a new product too complicated, they may reject to try this product that can waste potential demand and profit (Usernomics, 2011).

#### **2.4.2 Collaboration with manufacturers**

Taking into account the fact that manufacturing process is mainly outsourced in the developing countries, communication within the fashion retail supply network has become much more complicated. Suppliers are based in different time zones and often speak different languages. The common approach to communicate via fax, phone, e-mail, sending fragmented documents and tables is not sufficient anymore. The united automatic system with the mechanism of fast and effective sharing of information with the latest specifications, updated plans, and technical instructions is needed for the efficient continuous work process. It is very important to arrange the information flow in the way then it is not necessary for suppliers to reproduce production data manually retyping it in their computer systems (Hinton, A., 2011).

There are software available in the market today that allows implementing visibility of the whole supply network. Using modern technologies makes possible to plan effectively and to fully control both internal and outsourced production. This kind of interactive communication ensures fast reaction to latest customer requirements and brings together fashion retailers and their suppliers.

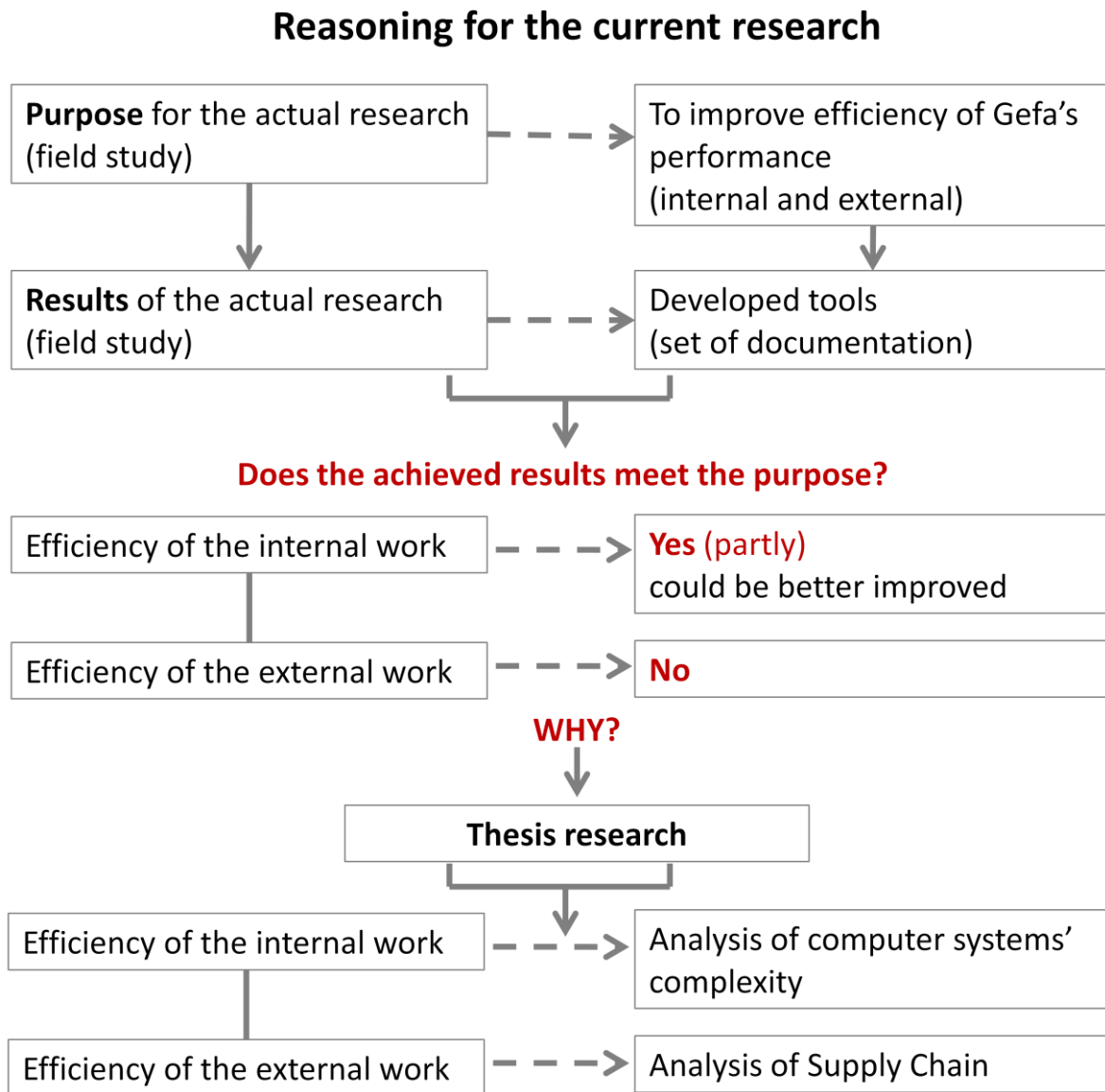
Due to the high competition in the fashion industry the product range of developing fashion brand suppliers is constantly growing, and the volume of orders conversely is decreasing. Consequently, the complexity of managing all production orders has increased as well. It is very important to have complete visibility of the orders' status in order to pay immediate attention to the particular one with the potential problem (Hinton, A., 2011).

The key issue to implement this transparent and flexible communication is to have the set of documentation, which would be easy to send, to read, and to understand. This means that it should be in the language that understand all participant of the chain, in the proper format for the system that companies use, contain all necessary, but not essential information, and, finally, to have an easily perceived layout.

### 3 Methods

#### 3.1 Reasoning for the current research

The purpose for the previous work (field study) was to improve efficiency of Swedish product development brand supplier Gefa AB. In order to gain this purpose it was decided to develop the set of documentation that included purchasing instructions, packing instructions and model of the contract between focal firm and its suppliers (see Appendixes 1,2, and 3). It was assumed that this set of documentation affects both, internal work of the company, saving time for designers during the process of new collection’s development, and external, improving information flow and collaboration with the suppliers.



**Figure 7:** Reasoning for the thesis research

However, after approbation of the developed tools it has become clear that the results do not fully meet the purpose. Developed documentation meets all requirements, but cannot solve existing problems efficiently due to the organization difficulties in the company. Due to the complexity of the company's computer systems developed set of technical documentation cannot be used entirely and has to be fragmented. Consequently, the main meaning of having all necessary and sufficient information about the style into the one set of documents has been lost. The work of designers has been improved, but only partly. The external communication with suppliers has been little improved, because the focal company often do not communicate with suppliers directly, i.e. all information flows through intermediaries who remain responsible for the speed and quality of the transmitted information.

The additional research was needed in order to define why the developed tools cannot be used in a proper way. The current thesis research is going to analyze the obstacles on the way of implementing of the initial task and to propose solutions how to overcome these obstacles. Figure 7 presents a schematic illustration of the current research's prerequisites.

### **3.2 The process and time frame of the task implementation**

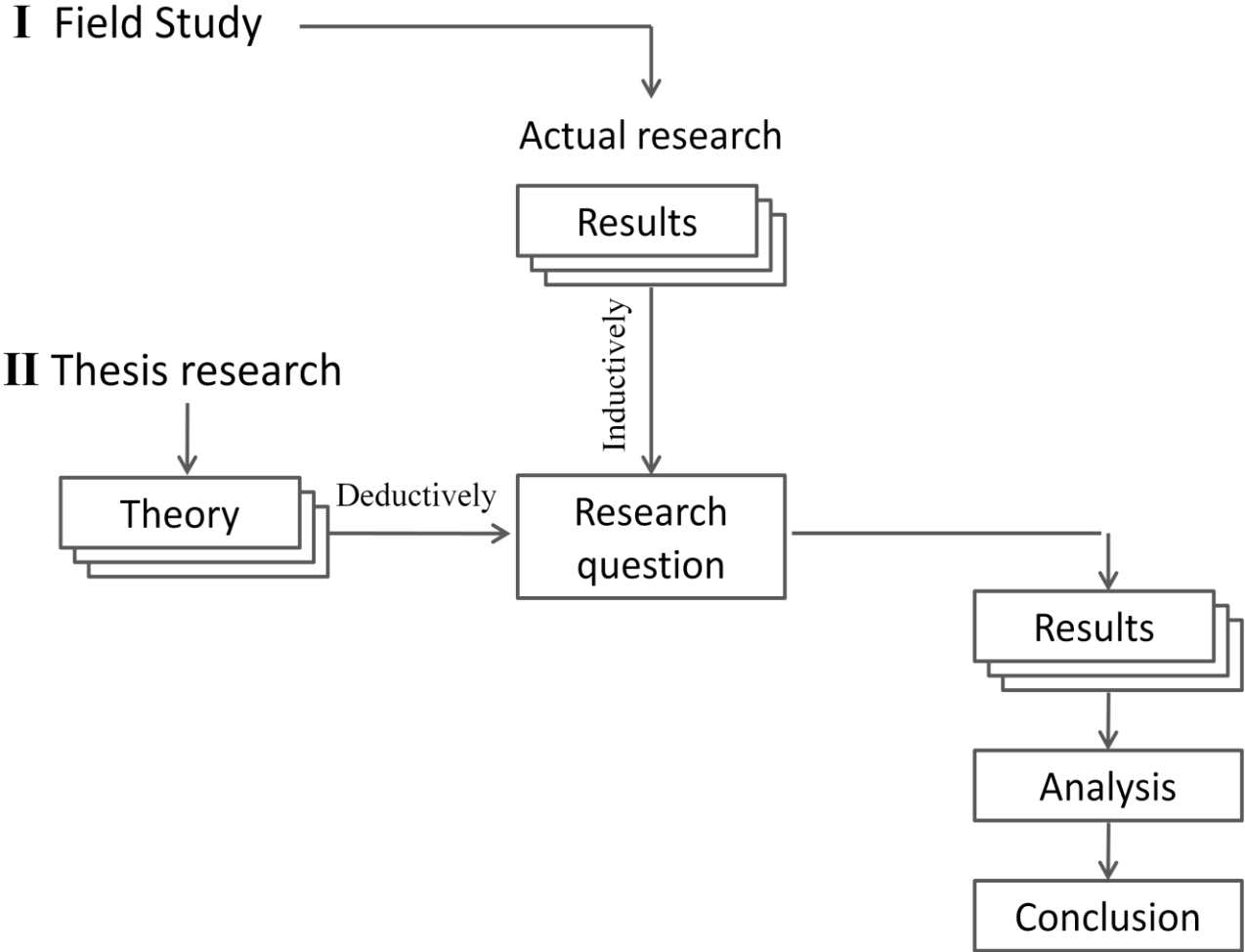
The first step of the task implementation was the previous work which had been done during the field study. This work consisted in the development of the set of documentation for Gefa AB. Three main documents have been developed: purchasing instructions, packing instructions, and contract between the focal firm and its suppliers. The steps and methods of how these documents were developed are described in the part 1.3.2. This process took place from January 17 to February 23.

After the testing of the results it was decided to continue research. The next step was the presented thesis project research. The research started by collection of various data through literature review with intent to find different possible variants of solutions for the existing problems. Complexity of the fashion supply chain and ways of its successful management have been studied and described. The role of the middlemen and technical documentation in the managing of this complexity has been also investigated. This process took place from April 3 to April 23.

Further, the Gefa Company's structure has been examined and described in order to define the obstacles for the using efficiently developed earlier tools. The interviews with the company's employees have been done and annual financial statements have been analyzed during this part of work. As the result the main problems of the company work and organization were defined.

The final step was the analysis of the stated problems with possible solutions that have been found during the literature review. Comparing analysis of the calculations has also been done in

order to prove that the proposed solutions are economically justified. The process was finished by May 23.



**Figure 8:** Work process

## 4 Gefa AB case study

### 4.1 Company's structure

Gefa AB is a product development brand supplier located in Tranemo, Sweden. The general description of the company is presented in the introduction part 1.1.

The company is in the process of reorganization now. It has 24 employees, and 7 departments, but CEO is going to reduce the number of employees up to 16. Those personnel who are going to be fired have been involved in the development and sales of two male brands, Jarl and Gefa Herr that CEO has decided to cancel as non profitable.

Since the company does not have its own production the main function of the central office is design of new collections and collaboration with suppliers and clients. There are seven small departments in the company.

*Design department* consists of three designers. However, since the company has decided to cancel male brands, one of three designers has to leave the company. Each of designers is responsible for separate brands. The company does not have any technical department, so designers are responsible for the new styles' creation, development of the technical instructions, and control over the all samples' manufacturing: prototype, sale sample and shipment sample. Designers also participate in the sales process. During the sales meetings they receive the information from the salesmen about the trends for the next season and take part in the discussion about possible modification and prices of the styles from the current collection (Ageros, F., Bladh, K., Sjöblom, R.-M., 2011)

*Sales & Marketing department* consists only from 1 person, who is responsible for leading the sales process and collecting marketing information. This person works closely with design department and salesmen, who partly are employees of Gefa AB and partly independent sales agents (Selinder, J., 2011).

*Purchase department* consists of two people. This department leads all Asian ready-made garment suppliers through the middlemen and European accessories and fabrics suppliers for the CMT production in Latvia directly. Collecting updated orders from the customer department purchase manager has to submit the final orders and to distribute it among suppliers or intermediaries. Negotiation process with suppliers about the prices and delivery dates is one of the main responsibilities of the purchase manager.

*Customer service department* is responsible for connections with customers, i.e. salesmen or sales agents. It consists of two people who collect all data about sales and make production orders.

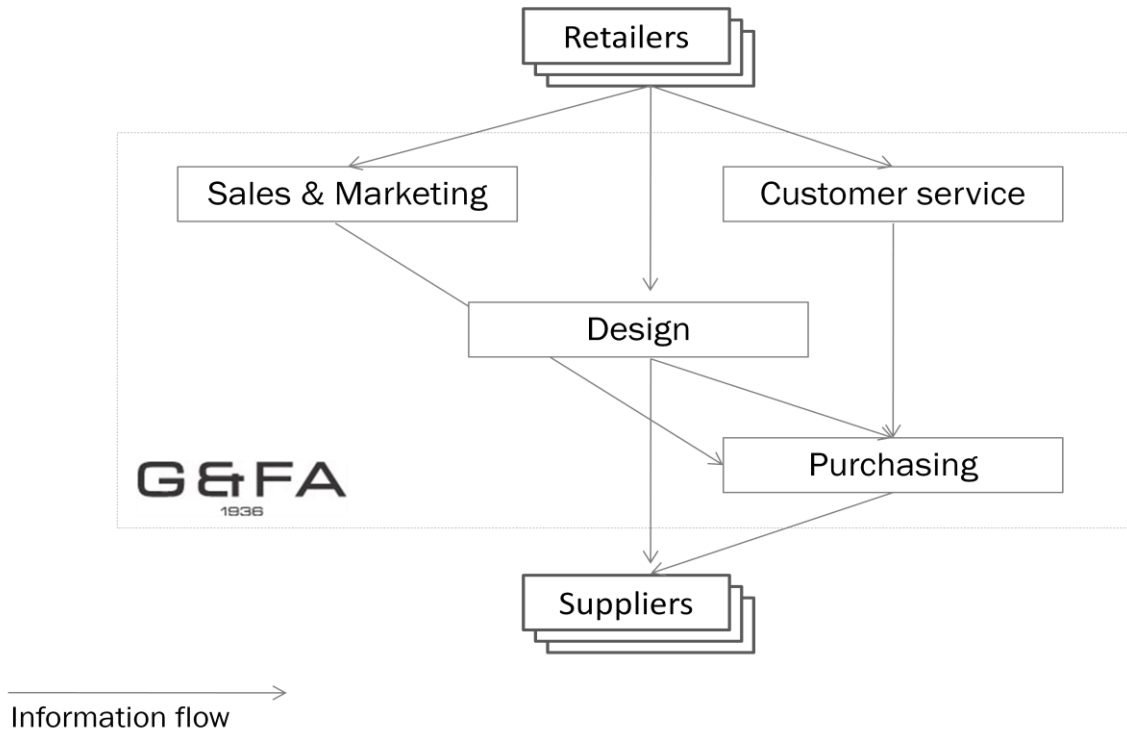
They also participate in the calculation of prices and work very close collaboration with purchasing department.

*IT department* consisting of one person only is responsible for the computers systems, such as Pisa and Garp, which the company and its Latvian suppliers use. It also is responsible for the monitoring of the company's website (Josefsson, L., 2011).

*Financial department* having two people lead incoming and outgoing invoices and all other financial documentation and calculation (Josefsson, L., 2011).

All produced styles arrive in the central *warehouse* in Tronemo. Here orders are divided for the different customers and distributed to the retail centers. The final quality control is done at the warehouse as well (Asp, C., 2011).

Figure 9 schematically shows the company's structure and communication between the main departments.



**Figure 9:** Links between the main departments

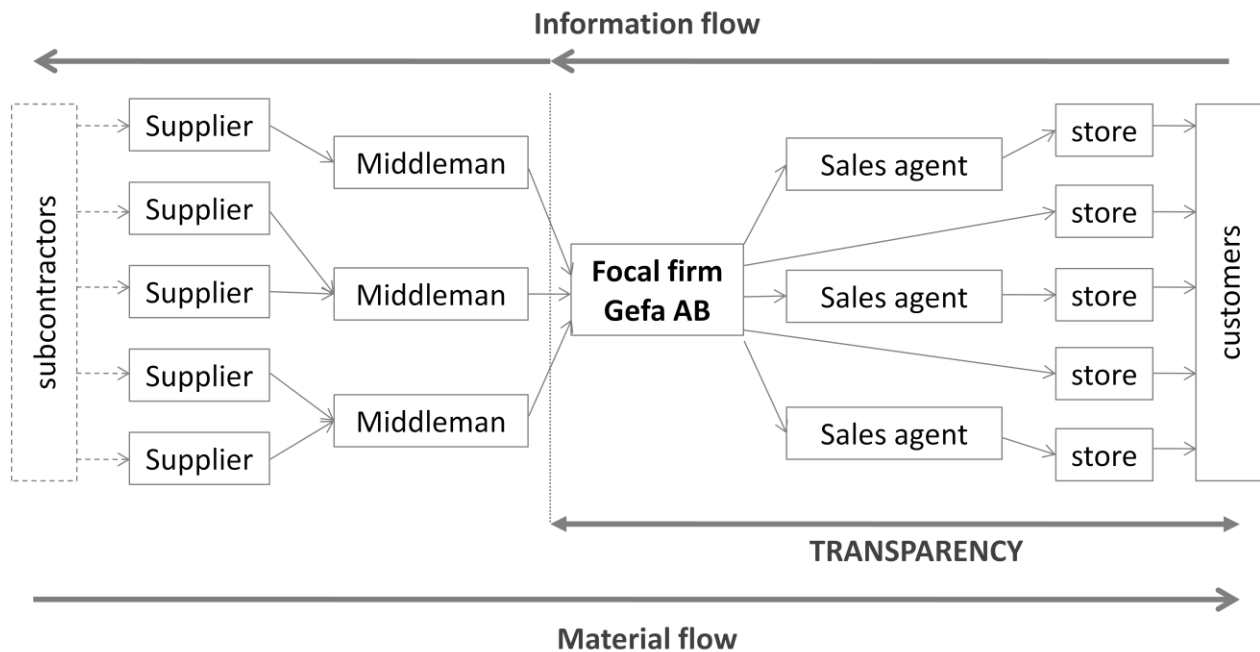
The system of sharing information between the departments is quite tricky: all departments are connected to each other. On the one hand it may ensure awareness about last changes among all responsible. However, on the other hand, this kind of communication entails the lack of the one responsible for the certain operation.

The design department has links with all departments, customers, and suppliers, taking a part in the sales process, orders' forming, technical links, and purchasing process. Consequently, this department is situated in the centre of the structure. However, there is also the purchasing department that has links with all others. Along with design department the purchasing has the direct communication with suppliers. Thus, the company has two contact departments with suppliers. This may entail the loss of one responsible, double questions and discussions.

## 4.2 Gefa's supply chain

### 4.2.1 Current supply chain

As it is shown on the Figure 10 the current Gefa's supply chain consists of five main links: suppliers with possible subcontractors from different east countries, intermediaries between suppliers and focal firm, the focal firm situated in Sweden, sales agents in the countries where Gefa's brands are presented on the market, and, finally, fashion retailers (stores) which sale the garments to the end customer. The information flow goes upstream from the final customers to the suppliers, and material flow contrary goes downstream from the suppliers up to the customers. The zone of Gefa's control over the both material and information flows is limited by middlemen between the suppliers and the focal firm. Middlemen, Gefa works with, often do not even dispose the real manufacturers with their exact location and prices. Consequently, transparency of the supply chain is not entire from the beginning to the end. It is blocked by the intermediaries that makes impossible to control the whole production cycle and to ensure timely deliveries.



**Figure 10:** The Current Gefa's Supply Chain

Gefa mainly uses the services of two companies as intermediaries: C Jahn International AB in Borås and Franchetti AB in Göteborg (Jarl, R., 2011).

Gefa AB controls the whole production cycle only with its Latvian manufacturer. Working without intermediaries and using CMT price model, Gefa purchases all necessary raw materials and send it to the producer. Having united with this manufacturer business management system GARP Gefa always has updated information about the orders placement and their current status.

Sales process is more transparent even though it also includes middlemen. The company has direct links with all distribution centres, retailers and even with some of the end consumers. Gefa implements its own monitoring of its target group, making surveys of customers. Moreover, besides sales agents company has also hired salesmen, who implement the direct communication with the clients (Selinder, J., 2011).

#### **4.2.2 Cost estimating for intermediaries**

As it was mentioned before, Gefa AB works with two types of production: CMT with Latvian manufacturer and Full price with the rest of manufacturers in Asia. According to the total numbers for the last season in Latvia were produced 74,994 pc of garments, and in Asia 203,257 pc of garments (Josefsson, L., 2011). If to compare these quantities it turns that Asian production makes 73% of total:

$$74,994\text{pc} + 203,257\text{pc} = 278,251\text{pc} = 100\% \rightarrow 74,994 \times 100\% / 278,251 = 73\%$$

Gefa AB bought 203,257 pc of garment at average price 69.64 SEK (Jarl, R., 2011).

According to the Richard Jarl, CEO of the Gefa AB, the intermediaries Gefa works with take from 5% to 10% of the style's price for their service. However, they do not display their interest, separating the manufacturing cost of their service. The average cost of intermediaries' service on the market is 7% of total cost.

Thus, taking 7% for the intermediaries' interest, it turns out that the last season the company paid 990,837 SEK to intermediaries:

$$203,257\text{pc} \times 69.64\text{SEK} \times 0.07 = 990,837 \text{ SEK}$$

### **4.3 Technical documentation**

Due to the fact that the company does not have the technical department all technical documentation is developed by designers. At the moment of the actual research the company did not have any standardized forms and instructions for the technical and purchasing documentation. Every designer is responsible for particular brands and he/she developed documentation for the styles in his/her own way. Moreover, all designers work with the same suppliers, consequently

suppliers have to study different types of documentation from the same client. The main problem was that not only the form of instructions differs from every designer, but the amount of information was also different. For instance, one designer could describe very clear all necessary information about the colours and design of print and embroidery providing all articles and codes of materials, but another designer only wrote the name of the colour without mentioning the specific quality of materials and codes of colours. One more example is that one of designers developed very good and detailed technical sketches with very short verbal description, but others describe the style in details without sketches and pictures. These differences in documentation creates many confuses and misunderstandings. Moreover, it provokes a lot of additional questions, which entails waste of time and decrease efficiency of work.

Documentation elaborated during the actual research helps to solve only part of existing problems. Developed set of documentation includes all necessary and sufficient information for the new style description (see Appendix 1), but it has to be fragmented due to the variety of computer programs that designers use.

The company lacks also general packing instruction. This instruction is needed in order to exclude possible mistakes in the mass production. The company sends packing instructions for every style at the present. Very often these instructions are identical for different styles. It means that suppliers do not read it carefully every time and if there are some changes in a new style they can easily miss it. The packing instruction must be general including information about all possible variants of packing and transporting. It must be revised once a season and sent to supplier only if some changes have been made. It ensures correct packing during the whole season for every brands and types of garment. The main difficulty in developing of these instructions is a very wide range of brands (Lobster Golfwear, Gefa Herr, Gefa Dam, Jarl, Sally O, and Hot Holiday) and different labels for each brand. Instructions must correspond to all these brands. Developed packing instruction includes all this requirements, but it cannot be used at present because it requires new method of work. According to the new instruction the warehouse staffs have to sort sizes in accordance with appropriate colour (see Appendix 2). Each piece of garment has to be marked by special coloured sticker during the packing process. The company has not introduced it yet due to the lack of appropriate communication with suppliers who have to start using these stickers.

#### **4.4 Computer systems**

The company mainly works with two computer systems: Product Data Management (PDM) system Pisa, and Business Management system GARP. These two systems are connected to each other that allow entering data only once without retyping it for the other system.

All departments except design department work with GARP system. This system also connected to the Latvian supplier, thus Gefa's central office has always updated information about orders

placed at this manufacturer. Design department works with Pisa system that is connected with CorelDraw where they develop all instructions, sketches and other documents.

The main problem of working with these systems is that they have already developed structure that does not meet all requirements for the TD. Consequently, any new developed documents cannot be used without involving programmers and changing the whole program.

## **4.5 Summary**

To sum up, the main problem of the company's structure is the lack of the technical department. Designers are responsible for the quality control not only of sales samples, but also pre-production and shipments samples that cannot be done on the appropriate level due to the lack of time. Moreover, there is no one responsible for the control of manufacturing process in general.

The main problem of the current supply chain is the presence of the intermediaries. They do not allow to ensure transparency of the whole chain and to implement appropriate control over the manufacturing process. Intermediaries increase complexity of the whole chain, decreasing lead times and efficiency of the communication with manufacturers.

Efficiency of the internal performance affected mainly by the current modification of the computer system Pisa which does not allow using elaborated technical documentation in the required form. Due to this fact the problem of TD is still relevant, even though the required documentation has been developed.

## 5 Analysis of problems and proposed solutions

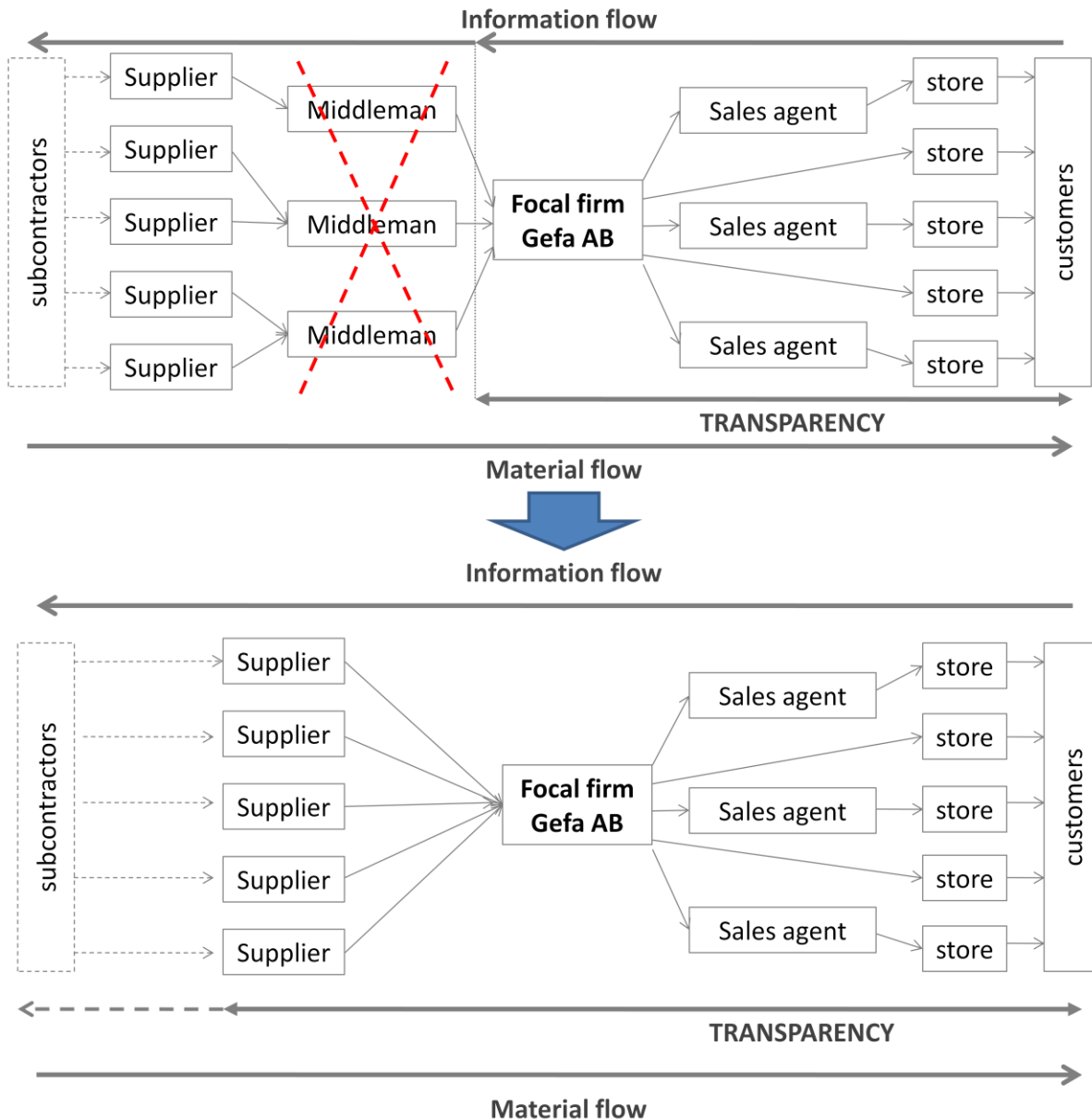
### 5.1 Focus on supply chain (new business model)

Calculation in the part 4.2.2 shows that the essential part of garments (73%) at Gefa AB is purchased through the middlemen. As it is shown in the theory part there are two different opinions about the role of intermediaries in the supply chain. Some authors suggest that intermediaries add essential value to the product. According to this point of view the Gefa's strategy could be successful. However, the nowadays situation at the company indicates that this system does not work in the proper way. The company has serious problems with both numerous late deliveries and quality of garments. Thus, the question is if the Gefa's intermediaries add the real value to its products. As it was described earlier, the agents Gefa works with prevent transparency through the whole supply chain. They do not dispose the real manufacturers and do not even separate the manufacturing price from their interest that, according to Mike Bellamy, does not inspire confidence in their willing to find suppliers with the best quality for the reasonable price. As a result this model, firstly, entails not sufficient control over the suppliers and prevents efficient information flow. Secondly, it increases costs and lead times. Finally, the company cannot directly control the whole production process and delivery dates which leads frequent late deliveries.

There could be two possible solutions to improve the currents situation. The first one is to change their intermediaries on more reliable and transparent. This does not require additional investments and reorganization inside the company. It would be enough to investigate the market of agents in this field and select those who have the best reputation and experience. However, this solution does not guaranty that situation will be improved significantly. The company still will not control the whole supply chain.

The other solution is to avoid intermediaries and to go directly to the Asian suppliers. However, there are several factors that have to be taken into account. First of all, the company has no technical department to implement efficient control over the suppliers. Designers cannot be involved in this process due to the lack of time and appropriate knowledge. The company has to create a new work position. This person has to have technical experience, negotiation and languages skills, and willing to travel a lot. The main duties of this employee should be to visit manufacturers during the production period for the quality and delivery time control. All of that entail additional costs. The question is if these expenses will be covered by saving on the intermediary's interest.

Calculation in the part 4.2.2 shows that last season the company paid to intermediaries 990,837 SEK. Rough estimate of company's costs for one more employee is about 516,000 SEK per year, plus spending for the business trips that takes about 120,000 SEK (Josefsson, L., 2011). Totally it turns:  $516,000+120,000=636,000\text{SEK}$

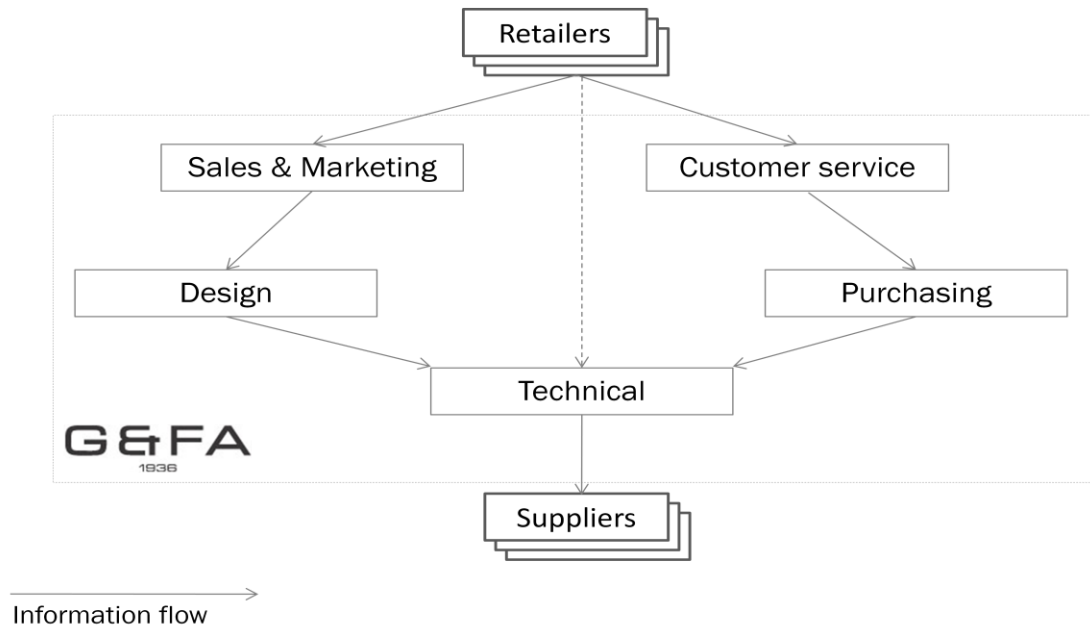


**Figure 11:** Strategy towards better transparency

Thus, preliminary rough calculation proves that to go directly to the manufacturer could be economically sound. Figure 11 demonstrates the proposed strategy. Figure 12 shows the company's new structure and links between departments after adding the technical department.

The information flow in the new structure is straighter and links between departments are better organized comparing with the current company's structure. The design department receives information from the sales & marketing department about the new tendencies and requirements for the future collection. When the new collection is created and all necessary documentation is

developed it passes to the technical department that is responsible for the links with suppliers and mass production. The responsibility of the design department is limited by the collection's creation and control over the sales samples.



**Figure 12:** Company's structure with a new technical department

Purchasing department receives updated data about the orders and forms the final orders. It also should be responsible for the suppliers' selections and first general negotiations with them regarding the contracts, general season delivery dates, etc. However, the everyday communication with suppliers must be carried out only by the technical department.

Receiving the technical instructions for the styles from the design department and final orders with approved delivery dates from the purchasing department, the technical department has all necessary information to carry out the total control over the manufacturing process. It should be the only link with the company for the suppliers. This model ensures the straight information flow, excluding possible misunderstanding and double information flow as it may acquire having two or more contact departments.

To sum up, a new technical department should be base one that collects from other departments all necessary information in order to implement the total control over the production cycle. It includes the technical assistance, quality control, and delivery dates control.

The final obstacle on the way of direct communication with suppliers is a lack of appropriate documentation. The company does not have the standard Full price contract with suppliers which would present the interests of the company. For instance, most of agreements are made orally and there are no penalties prescribed in the case of the late deliveries. Elaboration of the Full price model contract is second task on the way of eliminating middlemen from the supply chain. The model of contract that was elaborated during the field study has to be finalized by CEO and introduced in work. This step does not require additional inputs and can be implemented in a short period of time.

## **5.2 Focus on technical documentation**

The unified technical documentation is needed in order to increase efficiency of work of both suppliers and company's designers and to decrease lead times of prototypes, sales samples and shipment samples production. However, there are many problems which have to be solved for the development of standardized documentation. The first difficulty is a very rich assortment (outerwear, jeans, knitwear, pants, blouses, dresses, etc). The set of documentations has to be unique for all types of garment, oversize it will not be efficient, because working with different forms of instructions for different types of garments leads wastes of time as well. Thus, the amount of information has to be sufficient for the work and appropriate for different technologies at the same time. The second problem is a plenty of computer systems, in which different departments work. Designers develop instructions in Corel Draw, moreover which is connected to the computer system PISA through which all necessary information is sent to suppliers. Finally, the purchasing department develops all documents in EXCEL program. Hence, all documents must be done in the format, suitable for all these programs.

The main objective of the field study was to develop unique purchasing and packing instructions in order to solve existing problems and to increase effectiveness of work of company's departments and suppliers at the same time. This set of documentation has been created. However, it is not used in an appropriate way. The main meaning of this set of documents is to have all necessary and sufficient information about the style at one place, i.e. in one program which could be used by all people who are involved in the work process. It is important from two points of view. First, it decreases lead time of documentation development. Having all necessary blanks for a style description in one program, designers and buyers do not have to waste time for changing different files and programs. Second, it is easier for suppliers to read information if all instructions are collected at one place and are done with the same layout. The unique layout of the whole set of documentation is very important in order not to miss some information and not to confuse different styles.

Taking into account the fact that at Gefa AB majority of all technical documents and instructions are developed by designers it is essential to have the set of documentation created in Pisa system, the designers work with, but accessible for other systems which the rest of department use.

Blanks for the purchasing instructions for the sales samples (see Appendix 1) have to be fully created in Pisa and filled by designers. However, these instructions include also information about order's quantity and delivery dates that is important for the purchasing department, i.e. this information has to be reproduced automatically in the GARP. General packing instruction (see Appendix 2) usually has to be modified only once a season, thus it can be done in Pisa and sent automatically as a PDF attachment to the suppliers when it is needed.

The current version of Pisa does not allow creating all set of instructions in the way how it has been developed. The program has to be modified and adapted to the structure and amount of information of this documentation. It is very important to pay attention to the layout of this program, because the layout of the printed documents in the current version is not suitable for the people, who do not work with this system, i.e. for suppliers.

## 6 Conclusions

The aim of this thesis research was to improve Gefa's performance. Developed during preliminary work documentation could not achieve this goal because it was impossible to use it in the forethought way.

By investigating of the company's structure, its supply chain, TD and internal communication the main obstacles of the efficient using of developed documentation have been identified. Three main problems can be highlighted:

- lack of the technical department
- presence of intermediaries between the focal firm and manufacturers
- current modification of the computer system Pisa

Two solutions have been defined as the most efficient taking into account the current complexity of the company's organization:

- to exclude intermediaries from the supply chain
- to adapt current computer system to the developed set of documentation

The first reason for avoiding intermediaries is to set direct communication with manufacturers in order to improve efficiency of the information flow. Only direct communication enables to use developed set of documentation in the most efficient way. However, there are additional benefits of using proposed supply chain model. Direct collaboration allows to improve transparency of supply chain and to implement the total control over the production cycle. This helps to minimize to risk of late deliveries and problems with quality. Finally, it decreases costs and lead times.

In order to implement this strategy it is necessary to create a new work place. This requires additional costs; however preliminary calculation shows that economies on the middlemen's interest should cover these expenses. Moreover, this additional employee will recoup the lack of the technical department.

The second solution to adapt the current computer system to the developed set of documentation is also needed for using this documentation in the proper way. This work entails extra expenses as well, but it will significantly improve efficiency of the design department work. Furthermore, the full package of necessary and sufficient information about a style collected into the one document with the same layout will vastly facilitate the suppliers' work, and consequently decrease the lead time of the samples' manufacturing.

## References

**Ageros, F.** (2011). Designer, interview.

**Asp, C.** (2011). Warehouse Manager, interview.

**Bauer, C.** (1995). "The Important Role of Technical Documentation in Product Liability." Wuppertal, Germany.

**Bellamy, M.** (2010) "Avoiding Middlemen in China", from:  
<http://chinasourcinginfo.org/2010/06/02/avoiding-middlemen-in-china/>

**Bladh, K.** (2011). Designer, interview.

**Christopher, M.** (2000). "The Agile Supply Chain: Competing in Volatile Markets." Industrial Marketing Management Vol 29, №1

**Christopher, M.** and **Lee, H.** (2004). "Mitigating Supply Chain Risk Through Improved Confidence." International Journal of Physical Distribution & Logistics Management Vol 34. №5.

**Gefa AB,** (2011), from:  
<http://gefa.se/>

**Gerschberger, M.** and **Engelhardt-Nowitzki, C.,** et al. (2010). "Complexity in volatile supply networks."

**Gifford, K.** (2010). "Technical Documentation", The Great Russian Encyclopedia, 3rd Edition, The Gale Group, Inc.

**Gosling, T. D. B.** (2007). "Evolving Middlemen Strategies For Simple Supply Chains". Department of Computer Science, University of Essex. Doctoral thesis.

**Harrell, C.** (2010) "Cutting Out Middle Man Increases Supply Chain Efficiency", from:  
<http://www.articleshmarticle.com/Art/279489/9/Cutting-Out-Middle-Man-Increases-Supply-Chain-Efficiency.html>

**Heden, A.** and **McAndrew, J.** (2006). The fashion factory, book, Portfolio Sweden AB.

**Hines, T.,** and **McGowan, P.** (2005). "Supply Chain Strategies in the UK Fashion Industry - The Rhetoric of Partnership and Realities of Power." International Entrepreneurship and Management Journal Vol 1,: 519–537.

**Hinton, A.** (2011) “Are You In Control?”, from:

<http://www.fastreact.com/online-article/are-you-in-control/55>

**Jarl, R.** (2011). CEO, interview.

**Josefsson, L.** (2011). Data manager, interview.

**Keifer, S.** (2011) “Postponement Techniques Improve Supply Chain Responsiveness”, from:

<http://www.articlesmarticle.com/Art/279489/9/Cutting-Out-Middle-Man-Increases-Supply-Chain-Efficiency.html>

**Masson, R., Iosif, L., et al.** (2007). "Managing complexity in agile global fashion industry supply chains." The International Journal of Logistics Management Vol.18, No 2.

**Selinder, J.** (2011). Sales/Marketing chief, interview

**Sjöblom, R.-M.** (2011). Designer, interview.

**Usernomics.** (2011). “Technical Documentation”, from:

<http://www.usernomics.com/documentation.html>

**Zatland, S.** (2008) “The maturing of the middleman: Achieving high performance in wholesale distribution”, Accenture, from:

[www.accenture.com](http://www.accenture.com)

# Appendix 1

# Purchasing instructions

Gefa

Producer: Supermax

Last modification: 02/07/2011

Season:	Collection:	Style:	Name:	Quality:	Article:	Designer:
113	LOBSTER	48525	DAY	100% PES Quick dry 40+ UV	#SD-SK0236	Rose-Marie



## SAMPLE ORDER

VAR.	COLOUR	XS	S	M	L	XL	XXL	TOTAL
10	OP WHITE	-	-	17	-	-	-	17
52	PINK	-	-	17	-	-	-	17
99	BLACK	-	-	2-17	-	-	-	17
								<u>51</u>

**Delivery date (at Gefa):**

Date (yy-mm-dd):

Week:

Photo samples

2011/06/07

23

Sales samples

2011/06/15

24

**Colours instructions:** C1/C2/C3...

v.10 op white/pink

v.52 pink/op white

v.99 black/white



**Washing:**

Yes:

No:

Effect: ~~Enzym wash (as prototype)~~  
softening laundry

**NOTES:**

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Season	Collection	Style:	Name:	Quality:	Article:	Designer:
113	LOBSTER	48525	DAY	100% PES Quick dry 40+ UV	#SD-SK0236	Rose-Marie



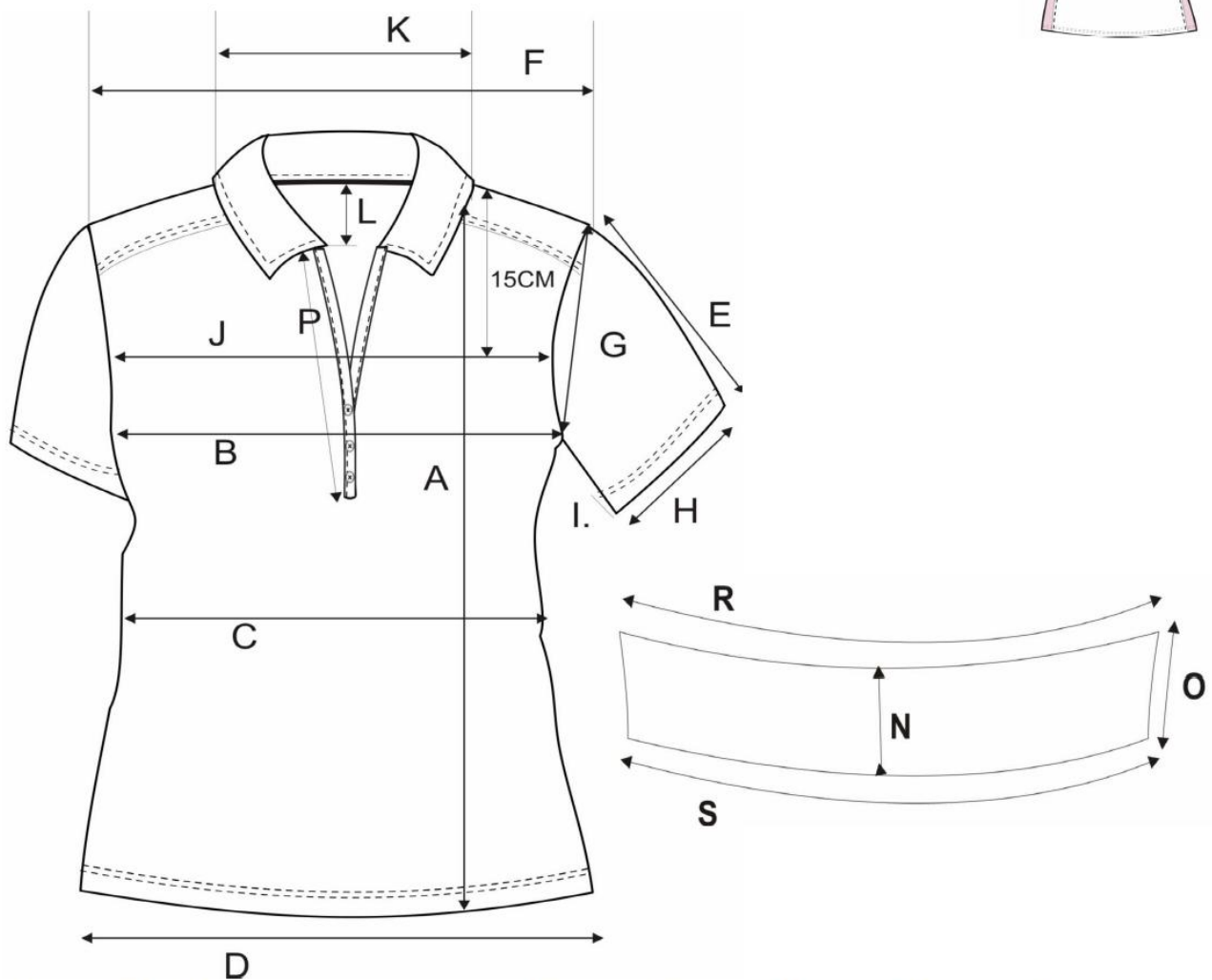
**TECHNICAL DRAWING**




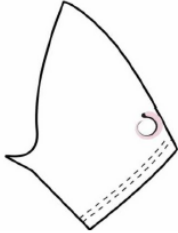
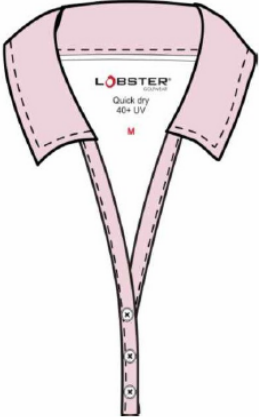
Season:	Collectiopr:	Style:	Name:	Quality:	Article:	Designer:
113	LOBSTER	48525	DAY	100% PES Quick dry 40+ UV	#SD-SK0236	Rose-Marie



## MEASUREMENT LIST



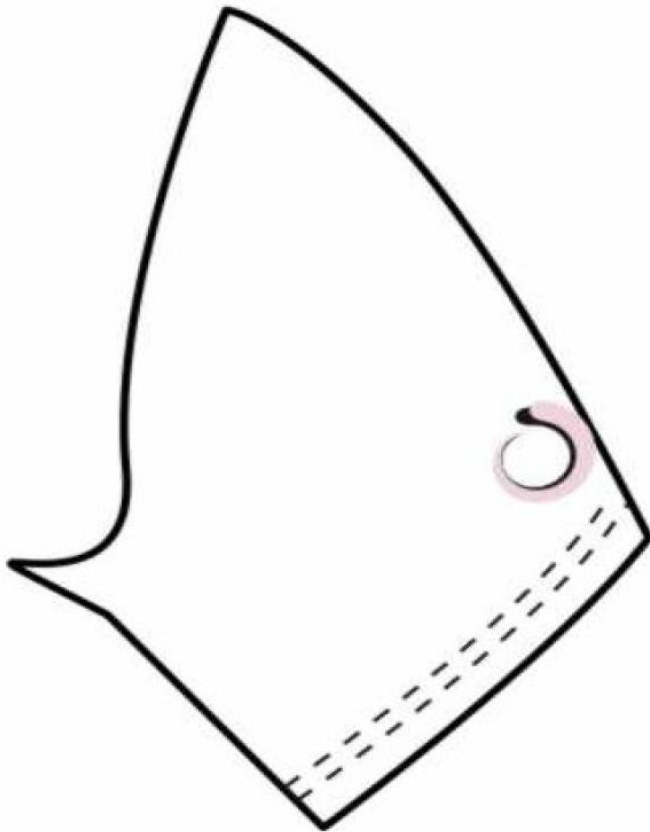
Code	Point of measurement	XS	S	M	L	XL	XXL
A	LENGT fm shoulder	62	63,5	65	66,5	68	69,5
B	CHEST 1/2	42	45	48	51	54	57
C	WAIST 1/2	38	41	44	47	50	53
D	BOTTOM 1/2	42	45	48	51	54	57
E	SLEEVE LENGTH	14	15	16	17	18	19
F	SHOULDER WIDTH	35,5	37	38,5	40	41,5	43
G	ARMHOLE DEPTH	18	19	20	21	22	23
H	SLEEVE OPENING 1/2	14	15	16	17	18	19
I	SLEEVE HEM HIGHT	2	2	2	2	2	2
J	FRONT WIDTH	31,5	33	34,5	36	37,5	39
K	NECK WIDTH	16,25	17	17,75	18,5	19,25	20
L	FRONT NECK DROP	7,5	8	8,5	9	9,5	10
M	BACK NECK DROP	1	1	1	1	1	1
N	COLLAR HIGHT CENTER BACK	6	6	6	6	6	6
O	COLLAR HIGHT FRONT	7	7	7	7	7	7
P	PLACKET LENGTH	23	23	23	23	23	23
R	COLLAR UPPER LENGTH			42			
S	COLLAR LOWER LENGTH			41			

Season:	Collection:	Style:	Name:	Quality:	Article:	Designer:	
113	LOBSTER	48525	DAY	100% PES Quick dry 40+ UV	#SD-SK0236	Rose-Marie	
<b>STYLE DESCRIPTION</b>							
<b>GENERAL:</b>	Lady's cutted Polo-neck shirt, from knit fabric						
<b>FRONT:</b>	consist of central part in C1 and lateral yokes in C2  ....  sewing: look the prototype						
<b>BACK:</b>	consist of central part in C1 and lateral yokes in C2 heat pressed main/size label at CB neck inside (see print Instructions)  .... sewing: look the prototype						
<b>SLEEVES:</b>	short sleeves in C2. Lobster logo embroidery at the left sleeve (see embroidery instructions)						
<b>COLLAR:</b>	Collar Polo in C2 starts up to placket/body seam instead of all the way to end edge of placket. Closing – 3 buttons/buttoholes (in tone with collar C2) <b>White piping</b> at the back neck seam inside for all variants (v.10, v.52, v.99).						
<b>TRIMMING:</b>	3 buttons + 1 spare as original sample, White piping for all variantes Heat pressed main/size label at CB neck inside						
<b>OBSERVATIONS TO THE PROTOTYPE:</b>							

Season:	Collectiopr:	Style:	Name:	Quality:	Article:	Designer:
113	LOBSTER	48525	DAY	100% PES Quick dry 40+ UV	#SD-SK0236	Rose-Marie



## EMBROIDERY INSTRUCTIONS



**v.10**  
white/pink



R i g h t s i z e  
E m b r o i d e r y

Colours of thread:  
black N.....  
pink N.....

**v.52**  
pink/white



R i g h t s i z e  
E m b r o i d e r y

Colours of thread:  
black N.....  
white N.....

**v.99**  
black/white



R i g h t s i z e  
E m b r o i d e r y

Colours of thread:  
black N.....  
red N.....

Season	Collectiopr:	Style:	Name:	Quality:	Article:	Designer:
113	LOBSTER	48525	DAY	100% PES Quick dry 40+ UV	#SD-SK0236	Rose-Marie



## PRINT INSTRUCTIOS

PRINT INSIDE



**v.10**

white/pink

Right size print:

**LOBSTER®**  
GOLFWEAR

Quick dry  
40+ UV

M

Colours of paint:

black N.....

red N.....

**v.52**

pink/white

Right size print:



Colours of paint:

black N.....

red N.....

**v.99**

black/white

Right size



Colours of paint:

white N.....

red N.....

Season	Collection	Style	Name	Quality	Article	Designer
113	LOBSTER	48525	DAY	100% PES Quick dry 40+ UV	#SD-SK0236	Rose-Marie



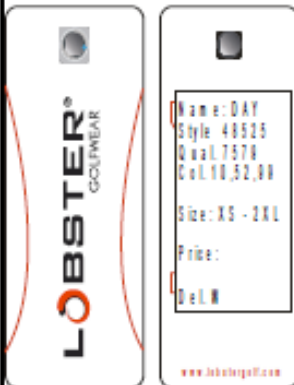
## BILL OF MATERIALS

Name	Article	UM	Quantity	variant			made by Supplier	sent by Gefa
				10 <input type="checkbox"/>	52 <input type="checkbox"/>	99 <input type="checkbox"/>		
buttons	.....	pcs	4	pink....	white...	white...		x
care lable	.....	pcs	1	a	a	a	x	
hangtag	T8024-10	pcs	1					x
pastlable	.....	pcs	1				x	
lace								
packet								
...								

## LABLES

### HANGTAG

T8024-10

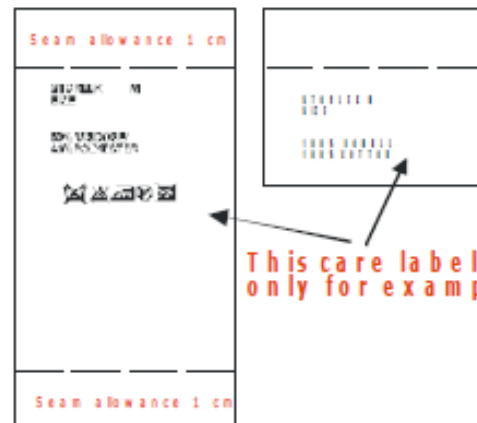


Name: DAY  
 Style 48525  
 Qual. 7579  
 Col. 10,52,99  
  
 Size: XS - 2XL  
  
 Price:  
  
 Del. W

### CARELABEL

Care label:  
 Material: Optical white sateen like material  
 Text colour: Black  
 Text type: ARIAL  
 All information must be written in  
**Swedish, English, German, French, Polish.**

← 35 mm →



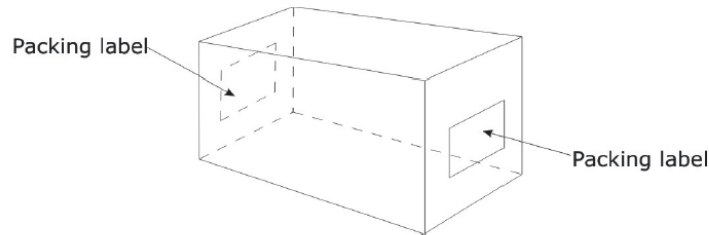
**This care label is only for example!**



**GENERAL PACKING INSTRUCTIONS**

**1. CARTONS**

- 1.1. Use only strong (3 layers) export cartons. The **maximum** size of the carton is 59x39x40cm (the minimum - 56x36x20cm). Height of the carton may vary depending on style's volume and weight. Maximum weight of the carton is **20kg**.
- 1.2. All cartons should be completely filled and closed with adhesive tape. It is not permitted to overfill or underfill cartons.
- 1.3. Carton Packing Label should be clearly visible and attached on the both small lateral sides of a carton. (Packing Label information see below)



**2. PACKING OF CLOTHES: solid size/solid colour**

- 2.1. Every solid item must be packed in separate polybag (polybag instructions see below)
- 2.2. Try always to use solid size and solid colour packing per carton. It is permitted to combine two sizes of the same colour only in order to fill the carton. Two different sizes should be divided with a layer of paper.
- 2.3. Carton Packing Label example:

**GEFA**

Order No:	13604	<b>1/23</b>
Style No:	33678	
Style name:	GARY	
Quality:	7418	

col/size	46/28R	48/30R	50/32R	52/34R	54/36R	56/38R	58/40R	60/42R	Total:
<b>26</b>			15						<b>15</b>
<b>89</b>				5	10				<b>15</b>
<b>Total:</b>									<b>30</b>

**3. PACKING OF CLOTHES: assorted sizes/colours**

- 3.1. The carton may contain one or more assortments packed separately in large polybags closed with an adhesive tape.
- 3.2. Every solid item must be also packed in separate polybag (polybag instructions see below)
- 3.3. Carton Packing Label example:

**GEFA**

Order No: 13604

Style No: 33678

Style name: GARY

Quality: 7418

number of assortments: 3

**1/23**

col/size	46/28R	48/30R	50/32R	52/34R	54/36R	56/38R	58/40R	60/42R	Total:
26	3	3	6	6	6	6	3	3	36
<b>Total:</b>									<b>36</b>

**4. PACKING OF CLOTHES IN POLYBAGS**

- 4.1. Use Low-Density Polyethylene transparent plastic bags with the symbol:
- 4.2. The size of a plastic bag should be (A) 58x38 cm for the large items, or (B) 28x38 cm for the smaller items in order to fit the carton in one of two ways (see the picture in the attachment).
- 4.3. The open side of the plastic bag should be bent-under and taped carefully.
- 4.4. Pastlabel should be pasted at the bottom right corner of the plastic bag and contain the following information: name, style, quality, colour, and size. The colour sticker should be pasted on the right side of the pastlabel according to the size (see size instructions). Example of the pastlabel:



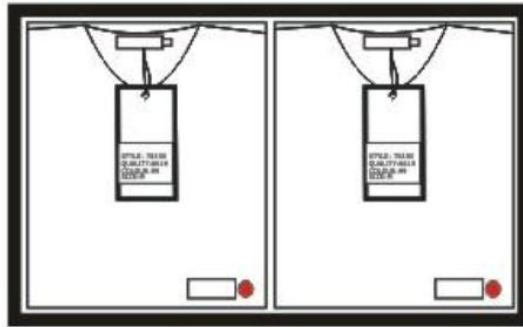
STYLE: 78190  
QUALITY:6619  
COLOUR:99  
SIZE:XS



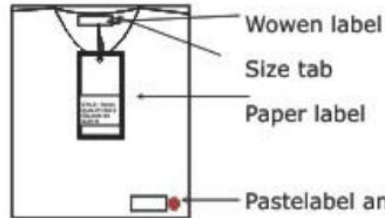
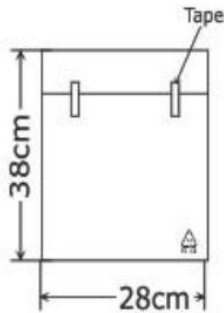
- 4.5. The hangtag should always be turned with the pastlabel side up. Size numbers and others labels must be clearly visible without opening the package.

**Note:** Please, consider the environment and use as little packing material as possible, but enough to prevent the goods from damages in the supply chain.

**Variant A (plastic bag 28cmx38cm)**



carton 59cm x 39cm

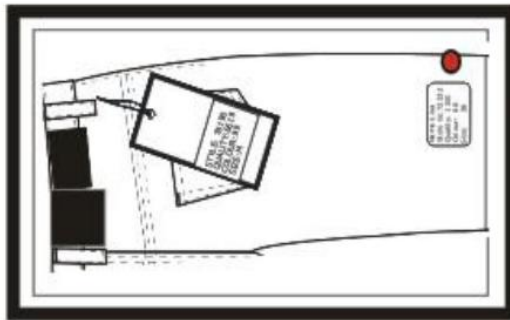


Pastel label only for example

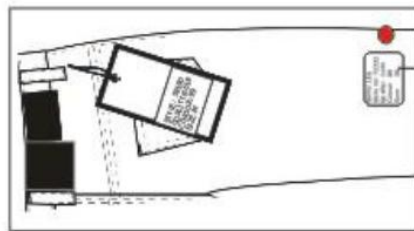
STYLE: 78190  
QUALITY:6619  
COLOUR:99  
SIZE:XS



**Variant B (plastic bag 58cmx38cm)**

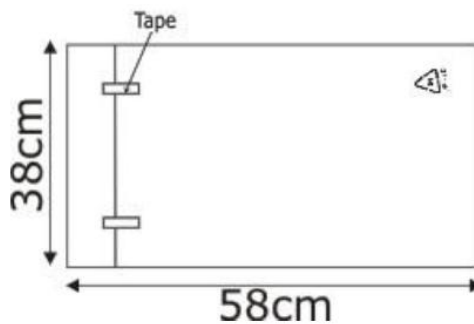


carton 59cm x 39cm



Pastel label only for example

STYLE: 78190  
QUALITY:6619  
COLOUR:99  
SIZE:27/30



## 5. SIZE-SCALE INSTRUCTIONS

Every size has to be marked with an appointed colour sticker, which sticks to the plastic bag on the right side of the pastlabel.















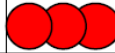
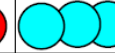
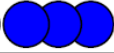



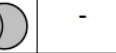














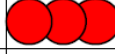





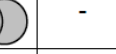


5.1. When the order has only one size scale (without additional length) each piece is to be marked with only one colour sticker according the scheme:

	red	light blue	dark blue	green	yellow	violet	grey				
	36	38	40	42	44	46	48	50	52	54	56
								-	-	-	-
	XS	S	M	L	XL	XXL	XXXL				
34/8	36/10	38/12	40/14	42/16	44/18	46/20					
-											
46/28R	48/30R	50/32R	52/34R	54/36R	56/38R	58/40R	60/42R				
-											
	D96	D100	D104	D108	D112	D116	D120	D124	D128	D132	D136
								-	-	-	-
146/28L	148/30L	150/32L	152/34L	154/36L	156/38L						
-											
	96/30S	100/32S	104/34S	108/36S	112/38S						

\* The symbol "-" in the table means that this size does not have any colour stick

5.2. When the order has several length, the smallest length 30 should be marked with only one stick of the appointed colour, the second length 32 – with two sticks of the same appointed colour, length 34 – with three sticks, and length 36 should be without any one. See the scheme:

	red	light blue	dark blue	green	yellow	violet	grey	
26/30	27/30	28/30	29/30	30/30	31/30	32/30	33/30	34/30
-								-
26/32	27/32	28/32	29/32	30/32	31/32	32/32	33/32	34/32
-								-
26/34	27/34	28/34	29/34	30/34	31/34	32/34	33/34	34/34
-								-
26/36	27/36	28/36	29/36	30/36	31/36	32/36	33/36	34/36
-	-	-	-	-	-	-	-	-
28/30	30/30	32/30	34/30	36/30	38/30	40/30	42/30	44/30
-								-
28/32	30/32	32/32	34/32	36/32	38/32	40/32	42/32	44/32
-								-
28/34	30/34	32/34	34/34	36/34	38/34	40/34	42/34	44/34
-								-
28/36	30/36	32/36	34/36	36/36	38/36	40/36	42/36	44/36
-	-	-	-	-	-	-	-	-

## 6. GENERAL PACKING LIST

6.1. General packing list that includes the contents of all cartons should always be sent immediately after a shipment via e-mail or fax at GEFA i Tranemo AB and should reach us before the goods arrive in Sweden.

**Note:** Please, consider the environment and use as little packing material as possible, but enough to prevent the goods from damages in the supply chain.

**FULL PRICE CONTRACT**

**1. CONTRACTORS**

GEFA ...

adress

**SUPPLIER**

adress

**2. KIND OF PRODUCTION AND QUANTITY**

Clothing manufacture

Fix order about 10.000

**3. PRODUCTION SCHEDULES**

\* SEASON: WINTER 2011

from week 23(1.06.08) to week 51 (15.12.08)

Last delivery finished garments from .....(supplier placement): 31.12.08

**4. PHASES OF THE WORK AND PRICE**

Work process is from the purchase of raw materials to the checkout of finished garments.

FOB price (FOB shipping point or FOB destination???)

**5. SAMPLES**

a) Before the starting of a style's production the supplier undertakes to manufacture a pre-production sample that has to be made of the right materials and has to be accepted by GEFA. The quality is to be in reference to the approval sample and has to be confirmed in writing by GEFA.

b) After the starting of a style's mass production shipment sample in the final packing is to be sent at GEFA for the approval.

**6. RAW MATERIALS AND ACCESSORIES**

It is responsibility of the supplier to purchase all raw materials and accessories, except several types of labels that are sent by GEFA. All materials must correspond strictly to those chosen by representative of GEFA.

**7. TECHNICAL ASSISTANCE**

GEFA undertakes to provide a permanent technical support via e-mail and phone during the production season. The representative of GEFA will come about once per a season. The final quality control of the goods before the shipment is responsibility of the supplier.

**8. PAYMENT**

Payment is made according the documents in 30 calendar days from the delivery date.

Payment method is (TT, L/C...)

**9. RESTRAINT OF PRODUCTION**

The supplier undertakes not to produce any style of this contract out of the country of abode.

The styles can be produced on the lines that the supplier will consider to be more convenient.

**10. DOCUMENTS ARE TO BE CONSIGNED TO THE TRUCK DRIVER AT THE MOMENT OF THE SHIPPING ????**

*a) Invoices in original (values as stated by the contract) in two copies.*

*b) Carnet Tir reflecting the invoices including both value and weight (the customs of destination will be stated by GEFA on each working program)*

*c) EUR1*

*The delivery of finished products is to be made in condition of CPT Chisinau???. (INCOTERMS 2000).*

*The supplier has to follow absolutely all requirements of the Swedish custom system.*

*...??*

**11.**

At every shipping of finished garments send a copy of the invoices (values as stated by contract) to fax ..... end the original one to GEFA (tel. .... Mr. ....)

**12.**

The styles are exclusive styles of GEFA. The supplier undertakes not to reproduce and sell them on the European market without proper authorization of the GEFA. In case GEFA finds any models sold without proper authorization will be taken legal proceeding against the supplier.

**13.**

In the case of late delivery of finished garments the following penalties will be applied:

1 week delay: franchise

2 weeks delay: 10% reduction on making cost

3 weeks delay: 30% reduction on making cost

**14.**

GEFA has the right to cancel or to add some styles for manufacture or to change order's quantity for the current styles in accordance with signed general quantity.

**15.**

This contract is signed for the period of 1 (one) year and starts functioning from the date of its signing by both parties.

**16. QUOTATION**

See annex list

**GEFA**

**SUPPLIER**

**Annex to the contract .....**

of the .....*date*

**SUPPLIER**

Type of work	Style	Quantity, pc.	Price (1 pc.), euro	Summ, euro
Jeans manufacture	<i>M 464 LA</i>	<i>1968</i>	<i>5,0</i>	<i>9840</i>
...				
<b>Total:</b>				

**GEFA**

**SUPPLIER**