

# Alternative outbound transportation modes for Sony Ericsson

- Is it possible to change transportation mode in order to reduce costs and the environmental effect?

*Jesper Nilsson Cederholm*

*Samir Smajic*

*Department of Industrial Management and Logistics,  
Lund University, Faculty of Engineering  
SE-221 00 Lund, Sweden*

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This article is based on a study conducted at the department Supply Chain Flow & Logistics at Sony Ericsson Mobile Communication in Lund. The purpose of the thesis was to explore if there are any possibilities to reduce cost and emissions connected to transportation without affecting customer satisfaction.

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## **Introduction and problem definition**

Sony Ericsson was established in 2001 as a joint venture equally divided between Sony Corporation and Telefonaktiebolaget LM. The purpose of this joint venture was to combine each company's strength to become a competitive player within the mobile handset industry.

Through the years this joint venture has proven to be a success, and their result had an up going trend until 2008. During the year 2008 much weaker numbers were presented in the quarterly reports and cost saving programs were introduced.

The global environmental discussion has been rapidly growing during the same time period – companies must become “green”. Sony Ericsson has a goal of reducing their CO<sub>2</sub> emissions by 30 percent until the year 2011. By finding other alternatives than air carriers for transporting goods the department believe that reductions of costs and CO<sub>2</sub> emissions can be made.

## **Purpose of the thesis**

The thesis aimed to explore if there are any possibilities to reduce transportations costs and the environmental effects for transports between production units and the market without affecting customer relations. Since customer needs are a high priority they have to be taken into serious consideration when searching for alternative transportation. When using airfreight transportation lead-times are minimized and customers get their product by fastest means. Can an extended lead-time be allowed and will it affect the customer satisfaction?

## **Focus and delimitations**

The main focuses of this report was to analyse the potential cost- and environmental reductions which could be done by shipping Sony Ericsson's mobile handsets with an alternative transportation mode and weight there gains against the risks that occurs. The authors have concentrated the study to the European customers and two

factories located in China, one in Beijing and another in Doumen. To be able to take advantage of the advanced planning and maximize the savings large European customers which place large order quantities well in advance was identified. The thesis also intended to present the amount of units that could have been sent with an alternative transport mode during the time period 2008 and connected cost reduction. Since the company situation has changed during the last year, customer orders delivered before 2008 was not included in the analysis.

Furthermore, the authors will solely include the CO<sub>2</sub> emission when looking into environmental effects. This since it is assumed to be the greatest and most discussed emission connected to transportation.

### **Methodology**

When dealing with a supply chain it is important to understand how different parts within the chain interact and how they contribute to the overall picture. When all the parts that build the system interacts synergies will emerge. Possibilities that are realized within the supply chain will affect the overall picture. These aspects were taken into consideration when choosing the system approach as the primary methodology used in the thesis. Furthermore the authors have used an inductive approach when conducting the thesis, since they did not have any knowledge of how the operational work related to the topic was conducted at Sony Ericsson. The thesis work started with a general description of the operational work. In order to obtain a deeper

knowledge within the subject the authors interviewed Sony Ericsson employees with certain knowledge within the subject.

To gain validity to the interviews all questionnaires were distributed before the interview. In this way the interviewed could prepare and vague questions could be discussed before the interview. Both authors always participated and took notes at all interviews. After summarizing, the result was sent to the interviewed to review and confirm the content. This in order to increase the validity and to ensure that no personal views from the authors was reflected. All literature sources have been published by either well-known universities, scientific journals or international organizations. To be published through these universities, journals or organizations the containment has to gain a high level of credibility. Therefore it is believed by the authors that these sources are accurate.

### **Theoretical Framework**

The theoretical framework includes theories about different means of transportation, their CO<sub>2</sub> emissions and information about the future development connected to them. Further, different unit-loads and risks connected to the supply chain are discussed. Finally theories such as CPFR, cross-docking, carrying costs and JIT are brought up.

### **Sony Ericsson Present Set-Up**

Sony Ericsson Mobile Communications has divided their market into eight different regions: Asia Pacific (APAC), Central East Europe Middle Eastern Africa

(CEEMEA), China, India, Japan, Latin America (LAM), North America (NAM), Western Europe (WE). The largest part of Sony Ericsson's manufacturing plants are located in China.

Since Sony Ericsson's build-to-order strategy is one reason for only using airfreight for transporting their goods. Another reason is connected to the type and value of the goods. High value goods with a short life-cycle are often transported with air. This since air is connected to high security, fast transports and minimized capital costs.

The lead-time for goods built-to-order and delivered from plants in Asia to Europe is with today's flight set-up about 10-13 days. All goods delivered to European customers are handled in hubs located in Aachen, Germany Vienna, Austria and Malmö, Sweden. The material planning and forecasts are connected to the business system, which is suited for today's set-up. Possible changes suggested would have an affect on the lead times, which would demand a adaption of the business system set-up

### **The alternative routes**

The authors did identify two routes, one from each factory.

DB Schenker has during the year of 2008 conducted two pilots where goods were sent on the Trans-Siberian railroad. The last pilot was conducted in co-operation with Fujitsu-Siemens who loaded a whole train, with high value gods, at their manufacturing plant. The train arrived in Hamburg in 17 days. After this pilot, DB Schenker announced that a regular train route,

with one departure each week in both west- and eastbound directions will be introduced in the end of February 2009. The train will departure from Shanghai, stop in Beijing and then travel non-stop to Hamburg.

This route is the alternative purposed for goods leaving the factory located in Beijing. The guaranteed lead-time for the route is set to 19 days (from Schenker), with handle time the authors used a total lead-time of 30 days in their calculations.

Goods produced at the factory located in Doumen are proposed to be sent by an intermodal alternative. Doumen is located approximately 90 km west of Hong Kong. Goods shipped from this factory will first be shipped on barge from Doumen to Hong Kong. In Hong Kong the goods are loaded on container vessel destination Dubai. This part of the route takes approximately 11 days if travelling with an average speed of 18-20 knots. When arriving to the Dubai harbour the cargo ship is unloaded and the container is transported to the Dubai airport. Since the TEU (Twenty-foot Equivalent Unit) profile is not suited for the air carrier the goods have to be unloaded from the container and loaded on pallets in order to better suit the air carriers loading profile. The lead-time from the arrival at the Dubai harbour to the departure from Dubai airport is approximately three days. The total lead-time for this route is set to 19 days.

### **Customer Analysis**

Both alternatives have an elongated transport lead-time in comparison with the present set-up and the

goods must be loaded into ISO containers. These two factors do set the primary criteria used when looking into historical sales order reports. The authors did search for customers, which placed large orders well in advance.

A ranking system, taking regards to the criteria mentioned, were constructed. The ten customers with the highest score from the ranking system were then further analyzed in regards to the number of TEUs, advanced planning, cancellations and material problem. An analysis on historical data did show that order connected to the factory in Beijing could count up for 60 TEUs that could have been sent on the Trans-Siberian Railroad. For both route options orders were consolidated to reach the order level desired, 9000 units.

### **Case**

In the case chapter the present transportation set-ups were compared with the two alternatives. The analysis did primarily reflect the economical and the environmental aspects.

The route on the Trans-Siberian railroad was compared to the flight set-ups from Beijing- to Frankfurt and Vienna. The intermodal route was compared to the flight set-ups from Hong Kong- to Frankfurt and Vienna.

When calculating the emissions for each transport mode the emission factors published by the Green House Protocol was used. Both alternatives showed a reduction in CO<sub>2</sub> emissions in comparison to the present set-ups. The Trans-Siberian railroad route showed a reduction of

84 percent and the sea-air combination a decrease of 50 percent.

The cost calculations resulted in one alternative route showing a great reduction in costs whilst the other was more expensive than the present set-ups. The Trans-Siberian route showed cost figures 41-55 percent lower in compared to the costs for the present set-up.

### **Conclusions and Recommendations**

For Sony Ericsson to be able to use the alternative route two underlying criteria must be fulfilled. Customer orders must be placed well in advance, the authors recommend 30 days. Further the consolidated shipment sizes must be of a large quantity. The authors used sizes of 9000 units, for the 40 foot containers, in their calculations. A further order size – cost analysis showed that economies of scale could be reached at size larger than 3300 units.

The extended lead-time is one of the greatest concerns that must be taken into consideration for both alternatives, this since it will affect several parts along the supply chain. The most crucial part identified are: the material planning, flexibility for customers regarding cancellations and changes during the lead time and the capital costs that will increase due to the extended lead-time.

The authors do believe that an alternative to the present set-up must be economical benefited to become an alternative at all. With this in mind the authors did recommend Sony Ericsson to further

look into the Trans-Siberian alternative and the possibilities to use it as a complementary for the present set up.

Since the authors identified a potential of 60 TEUs, per year, leaving the factory in Beijing, they believe that it in the future is possible to arrange for one TEU shipment in westbound direction each week. The authors believe that it is important to allocate volumes for continuous shipment in an early stage. This since the route is believed to become a popular alternative were lack of capacity will occur. If Sony Ericsson can guarantee one shipment each week they could negotiate better rates for the sea-air alternative in order to save more on the freight costs.

If the train route is implemented with good results, a future development of the consolidation can be done in order to increase the volumes. For example consolidate orders from the same country or even all order to the same market-region.