Operations Management Coursework

ECCO Shoes Global Value Chain

By Arif Harbott

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Lecturer: Dr. Canan Kocaba
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1 ECCO's operations strategy

ECCO follow a differentiation business strategy producing the highest quality shoes and they use their operations as one of their main points of competitive advantage.

ECCO's operations strategy is top-down (i.e. formed in pursuit of its business strategy) and operations-led (i.e. based on the resources and capabilities within its operations). They prioritise quality and reliability; the supply chain is configured to produce in accordance with specification and without error.

ECCO has a very atypical operations strategy compared with their industry peers. Unlike their "branded marketer" competitors they produce their own materials and manufacture 80% of their own products in factories around the world. Owning and controlling the entire value chain gives them huge flexibility and allows them to maintain the highest levels of quality.

Leong et al. (1990) state that operation strategy consists of the key decision areas concerned with the structure and infrastructure of operations:

1.1 Structure

- **Facilities:** An independent configuration of global facilities with tanneries and full-scale manufacturing facilities in Europe and Asia. Distribution centres are located in the major markets of Europe and United States. The decision to open facilities in China is to access cheap labour and to serve the growing Chinese domestic demand.[1] Research and development is primarily carried out in Denmark.

- **Capacity:** The majority of the manufacturing capacity is located in Asia due to the low rates of labour. However these facilities have long lead times and make the supply susceptible to changes in customer demand. There are no manufacturing plants in USA, which is one of ECCO's major markets.

- **Process technology:** This is a key asset to the company and the core of ECCO's product strategy was shoes based on "direct injection". Competitors tried to copy the direct injection technique, however, ECCO performed many small tasks differently throughout the process, which improved quality and made it hard to imitate.

- **Supply network:** ECCO operates a fully integrated value chain manufacturing 80% of its products in-house. The remaining 20%, mostly shoes with very thin soles, are outsourced, as they do not benefit from ECCO's core technology.

- **Cost base:** Due to the labour intensive nature of show manufacturing ECCO locate their production facilities in cheap labour countries. However there is then a trade-off in lead times and more stock must be held in local distribution centres, which increases working capital.

[1] See Appendix 1 for a full break down of supply chain facilities in each country.

1.2 Infrastructure

- **Planning and control:** ECCO's downstream retail shops ensure full access to customer demand data. This allowed them to plan and react to changes in demand and control the amount of inventory in distribution channels. Manufacturing control is achieved through benchmarking production and by having multiple production facilities so best practice could be shared between them.

- **Quality:** Quality is key to the company strategy quality. Quality management is maintained by having full control of the supply chain which allows ECCO to set quality standards much higher than they could expect from external suppliers.

- **Human resources:** ECCO invests heavily in continuous training and education of its employees providing vocational training, career development and expatriation.

- **New product development:** New products, prototypes and laboratory production technologies, are carried out in Denmark, where they experiment with new materials, processes and technologies. Operational R&D is carried out in the foreign production sites where they streamline processes and optimise the use of materials.

- **Procurement:** Compared to their competitors this is a very minor part of ECCO's operations. They purchase raw hides for the tanneries and they outsource 20% of their shoes (those mainly with thin soles). We assume that ECCO maintain a number of suppliers to increase competition and to mitigate redundancy issues.

1.3 Global vertical integration

A global value chain is strengthened by the fact that shoes are relatively light compared to their value, have few local differences, are not complex to produce and have a long lifecycle.

Operating a vertical value chain has advantages:

1. Owning retail stores ensures access to consumer demand forecasts
2. Direct interface with customers helps with new product development.
3. Full control over the level of quality
4. Maintains shoe knowledge within company

But also has challenges;

1. Synergy advantage is only realised if each discipline is performed better than competitors
2. The wide span of competencies required can dilute the focus of the company
3. Requires high investment and working capital levels
4. Increased costs of transporting materials around the world
5. A complex interlinked logistical process

A weakness of vertical integration is that it reduces the number of suppliers you can choose from (i.e. you must choose a company owned supplier), this lack of competition can lead to and increase in inefficiency. ECCO cleverly utilises multiple factories and tanneries to encourage internal competition and to keep quality high.

1.4 Further operational execution examples

1.4.1 Manufacturing facilities

Manufacturing in Asia provides low cost labour and the Slovakian facility serves the European market. ECCO made the Portuguese unit more high-tech and this seems to deviate from the low cost labour strategy as its very capital intensive, this facility could be merged with the Danish facility.

1.4.2 Training centres

The establishment of an education centre, research centre and the ECCO business academy served as signs of commitment to training employees and to reach the aim that 80% of the company's leader should be recruited internally.

1.4.3 Faster lead times

ECCO required faster lead times to serve the promising Russian market and the 3-4 week transportation time from Asia was not acceptable. So a production facility was opened in Slovakia close to this new market, which also served to create extra capacity, and reduced the risk of delays from Thailand.

1.4.4 Production cycle

The speed of production is dependent on the flexibility and adaptability of the production system and the availability of the raw materials. ECCO's tanneries in Europe and two adjacent to manufacturing facilities in Indonesia and Thailand enable ECCO to control:

- Efficient leather processing
- The quality of the leather produced
- Faster production of the leather

2 ECCO's global supply chain

ECCO fully integrated value chain 'from cow to shoe' means managing global operations.[2]

[2] Tanneries, manufacturing and distribution functions are owned, managed and run by ECCO.

Rawhides	Tanneries	Manufacturing	Distribution	Outsourcing
•Germany •France •Denmark •Finland	•Netherlands •Thailand •Indonesia	•Denmark •Portugal •Indonesia •Thailand •Slovakia •China	•United States •Denmark	•Thin soled products

2.1 Tanneries

ECCO's rationale for owning tanneries are their high demands on quality and lead times; they operate one tannery in the Netherlands and another two adjacent to manufacturing facilities in Asia. Locating tanneries close to manufacturing facilities means materials have less distance to travel and demand can be closely matched to supply.

However the majority of the rawhides originate from Europe so have the additional cost to be shipped to the Asian manufacturing sites, which means ECCO are vulnerable to changes in transportation costs and it also increases the length of the working capital cycle.

2.2 Manufacturing

ECCO operate worldwide manufacturing facilities to achieving labour cost savings and to spread risk. Each production site specialises in a core competency (such as production of shoes or uppers), which allows for workers become expert at a particular part of the production process, which increases efficiency and lower the costs of production.

The technology and knowledge intensive manufacturing functions (such as R&D) are located in Europe whereas the labour intensive manufacturing is located in lower cost Asian countries. The downside to this configuration is that it may be harder to find high quality employees that match ECCO's European values in Asia and also co-ordinating the flow of information, materials, and people is much more difficult as the distance from corporate headquarters increases.

Locating manufacturing far away from retail markets increases lead times due to the inventory travelling time but also because of increased inspections and compliance at border crossings.

2.3 Distribution

ECCO had two main distribution centres one in the USA and one in Denmark, which feeds 26 sales subsidiaries. The majority of inventory travels through the distribution centre in Denmark, however only 6-9% of production is sold in Denmark so it then has to be shipped to the local distribution centres, some as far away as Japan. This extra travel increases lead times and costs and introduces a trade-off in terms of terms of the cost and speed of transport methods; sea and road shipping is much more cost effective but slower and air transportation is very costly and should only be used for emergency shipments.

ECCO's global manufacturing facilities do not always match the retail markets it serves. In 2004 ECCO's main retail markets were USA, Germany and Japan yet the majority of the production and distribution took place outside of these geographies. While we expect the

majority of manufacturing to be completed in low cost countries, in order to react to large changes in demand some manufacturing should take place close to large, important markets.

2.4 Drivers and trends in the industry

There are two main trends in the industry:

1. Shoe brands are moving towards an outsourcing manufacturing model
2. The speed of consumer market trends is increasing

ECCO's competitors mainly outsource their production to manufacturing experts and use their extra resources to develop specialised sales and marketing competencies. In contrast ECCO need to develop a broader range of competencies that encompass manufacturing, materials, distribution and sales, which mean that they will not have the marketing strength of their competitors. Branding is important in consumer markets and global brands are created by large marketing budgets. ECCO's integrated value chain requires large capital investments in manufacturing facilities, which means less capital to spend on marketing. As a brand it has huge awareness in Denmark (99.4% brand recognition) but internationally this is much lower.

Other benefits of outsourcing production include lower costs, a larger choice of suppliers and cheaper redundancy by having a network of suppliers. However their competitors also face downsides such as the substantial resources required to scrutinize the supplier network, monitor quality and maintain supplier relations. It can also make companies more vulnerable to the price increase in raw materials.

In today's trend-driven consumer markets certain categories of shoes (such as trainers) are seen as fashion items, so the number of styles and new styles per year are more important than quality.[3] Therefore the higher levels of quality that ECCO provide are an extra cost that is not valued by the customer and provides no competitive advantage.

3 Supply chain risks and mitigation strategies

We have focused on risks with the highest priority index and then discuss some mitigation strategies that try to balance the risk reduction/reward trade-offs.[4]

Key risks[5]	***Impact***	***Probability***	***Cost of Mitigation***
Intellectual property breaches	High	Medium	Medium
Balancing capacity and inventory	High	High	Medium
Delays in material flows	High	Medium	High

[3] Zara only manufacture their clothes to worn 10 to 15 times, as they believe that after this the item will be out of fashion. The focus is on variety of their clothing lines and a reduction in quality.

[4] The priority index is the severity x probability of occurrence x probability of early detection. See appendix 2. Slone R., Mentzer J., Dittmann P. (2010) The New Supply Chain Agenda

[5] See Appendix 2 for a full analysis of ECCO 's supply chain risks.

3.1 Intellectual property breaches

ECCO's direct injection technology is a key technology advantage and expanded operations in China could pose an intellectual property (IP) risk.

ECCO protect their technology by performing many small tasks differently and keeping manufacturing in-house, however the Chinese government has started adopting a policy of technology transfer where foreign companies have been forced to used joint ventures and share technology with local companies.[6] ECCO's competitors have less exposure to this risk because (apart from Geox) they outsource their production and concentrate more on marketing than manufacturing technology. China also has weak IP legal protection and is one of the world's largest counterfeit markets so as ECCO's brand awareness in China grows the risk of counterfeiting will increase.

These risks can be mitigated by continued investment in research and development; developing new technologies and processes make it very hard for competitors to keep up (this is a tactic employed very effectively by Apple). Patents and legal protection can also be used, which ECCO is already employing.

3.2 Inventory problems with changes in demand

ECCO's complicated supply chain with production and assembly across the world may face difficulties with unexpected sharp changes in demand.[7] Their supply chain incurs long lead times due to the proximity of the manufacturing facilities to the end markets.

For example balancing capacity and inventory in the USA (which accounts for 26% of sales) may be difficult as there are no local manufacturing meaning inventory has to be shipped from overseas. Most of this demand can be planned and forecasted as 80% of retails orders are made in advance however the 20% replenishment orders need to be delivered in just a few days and if not fulfilled on time could have negative brand impact.

Generic mitigation strategies include holding more capacity in distribution centres, adding capacity, increasing responsiveness and increasing flexibility.[8] A more specific strategy may be to increase the level of strategic stock during periods of volatile retail trading such as public holidays and Christmas.[9] Where capacity is expensive (such as the USA) we suggest that ECCO centralise capacity to pool risk.

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[6] Hout T., Ghemawat P. (2010) China vs. the World: Whose Technology Is It? Harvard Business Review December 2010.

[7] See appendix 3 for a visual representation of ECCO's complex global supply chain

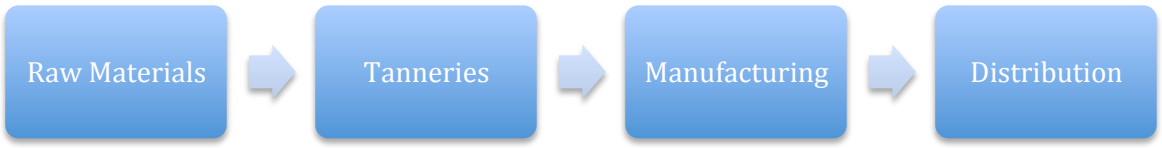
[8] Chopra S., ManMohan S. (2004) Managing Risk To Avoid Supply-Chain Breakdown.
MIT Sloan Management Review, Fall2004, Vol. 46 Issue 1, p53-62, 9p, 3 Diagrams, 4 Charts

[9] Strategic stock is additional "just in case" safety stock inventories of certain critical components to ensure that the supply chain can continue to function smoothly when facing a disruption in supply.
Tang C. (2006) Robust strategies for mitigating supply chain disruptions.
International Journal of Logistics: Research & Applications, Mar2006, Vol. 9 Issue 1, p33-45

3.3 Delays in material flows

An integrated supply chain means there are more stages to get inventory into sales channels and this introduces more fail points. One example is as materials and inventory are moved around the world they incur higher levels of inspections during border crossings as well as changes in transportation modes during shipping, which at any stage could cause unforeseen delays.

Figure 1: ECCO supply chain



Delays between links in the supply chain can be mitigated in the short-term by holding more stock or by using faster more modes of transports such as air cargo (however these both increase costs).

Using a payoff matrix it can be argued that leather production has little potential for competitive advantage and low strategic vulnerability so has high potential for outsourcing. Shortening the supply chain by purchasing leather would reduce the number of fail points and free up capital and allow the company to focus on more critical success factors.

Another long-term solution could be to source materials (such as leather hides) closer to tanneries so that there is less distance to travel and would also reduce transportation costs.

Appendix 1 – Global supply chain

Raw hides:

- Germany
- France
- Denmark
- Finland

Tanneries (supply leather all over the world)

- Netherlands
- Thailand (full-scale production)
- Indonesia (full-scale production)

Full-scale production factories

- Portugal
- Indonesia
- Thailand
- Slovakia
- China

Distribution centres

- United States
- Denmark

Outsourced:

- Thin soles (location not specified)

Appendix 2 – Supply chain risk analysis

The priority index is the severity x probability of occurrence x probability of early detection. Which are all scored between 1-10. For example severity = 5, probability of occurrence = 5, probability of early detection = 1. Therefore the severity index is 5 x 5 x 1 = 25.

Delay risks	***Severity (1-10)***	***Probability of occurrence (1-10)***	***Probability of early detection (1-10)***	***Priority index***
Changes in demand	9	9	5	405
Poor quality output	9	4	2	72
High levels of handling or border inspections	6	5	3	90
Material input shortage	9	2	3	54
Materials delays	9	8	7	504

Disruption risks	***Severity (1-10)***	***Probability of occurrence (1-10)***	***Probability of early detection (1-10)***	***Priority index***
Natural disasters	9	1	1	9
Labour strikes	7	3	3	63
Terrorism	8	2	1	16
Civil unrest	9	2	1	18
Adverse weather conditions	9	3	1	27

Systems risks	***Severity (1-10)***	***Probability of occurrence (1-10)***	***Probability of early detection (1-10)***	***Priority index***
Computer viruses	6	2	5	60
Hardware failure	5	3	1	15
Network failure	8	2	1	16

Forecast risks	***Severity (1-10)***	***Probability of occurrence (1-10)***	***Probability of early detection (1-10)***	***Priority index***
Forecast mismatch	8	4	3	96
Bullwhip effect	7	5[10]	3	105

Intellectual property risks	***Severity (1-10)***	***Probability of occurrence (1-10)***	***Probability of early detection (1-10)***	***Priority index***
Technology/ process loss	10	7	9	630

[10] ECCO operates its own stores to there is little chance of the bullwhip effect occurring

Counterfeiting	7	9	8	504

Procurement risks	***Severity (1-10)***	***Probability of occurrence (1-10)***	***Probability of early detection (1-10)***	***Priority index***
Supplier price increases	10	7	1	70
Exchange rate fluctuations	5	8	2	80
Transportation price increases (cost of oil)	6	7	2	84
Increased taxes and duties	9	5	2	90

Other risks	***Severity (1-10)***	***Probability of occurrence (1-10)***	***Probability of early detection (1-10)***	***Priority index***
Inventory risk	8	2	2	32
Receivables risk	9	1	1	9
Capacity risk	8	4	4	128
Political risk	9	3	1	27