Performance Evaluation of the Ethiopian Leather Industry

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Abstract

Ethiopian government recognizes leather industry as one of the most important sectors to accelerate the economic development by creating more job opportunities and generating income through exports. However, contribution of the industry to the national economy has been disappointing when compared to the country's tremendous resource potentials for raw material needs (1st in Africa and 10th in the world in livestock population). The main objective of this study is to evaluate the performance of Ethiopian leather industry (ELI) under the light of critical success factors (CSFs) (such as quality, cost, delivery, flexibility and innovation). Also, the study tries to benchmark the performance of ELI with leading leather processing countries in the world (China and Italy). Various literature and data were surveyed to examine manufacturing performances. Also, panel of 13 experts were participated, with backgrounds ranging from CEOs of the leather industry to experts in leather industry development institute (LIDI). The study used spider chart for the performance evaluations and benchmarking purpose. It is revealed that the ELI is operating at low performance with respect to the CSFs. There is also high deviation between Ethiopia and the competitive countries with respect to the CSFs. The study conducted cause and effect analysis to illustrate the interrelated problems that seem to explain underperformances of the ELI. Also, the SWOT (strengths, weaknesses, opportunities and threats) analysis revealed the dimensions that are important to upgrade participation of the ELI in global value chain. The industry should alleviate the identified problems to improve performance and realize its vision of becoming globally competitive. The findings may give a snapshot for the policymakers and strategic planners to easily understand the nature of the CSFs during formulation of action plan for improvement activities.

Keywords: *Ethiopia, leather industry, critical success factors (CSFs), competitiveness.*

1. Introduction

Leather industry is considered as the largest industrial sector in the world. Leather is often cut and assembled into leather goods, clothing, shoes, furniture and many other items of daily use. The products are amongst the most widely used and traded commodities in the world. It is compared

very well with any internationally traded commodity. The annual trade value of leather items was more than seven times that of rice, more than six times of coffee and more than two times of meat trade (FAO, 2021). At the same time, the leather industry plays a significant role in the global economy (contributes approximately USD100 billion/year), out of which Africa's earning amounts to only $4 billion (Hauge, 2018). The share of Africa in world leather trade has remained low in the last 25 years of the twentieth century, irrespective of having 21% of the world's livestock population to satisfy raw material needs (UNIDO, 2021). In 2017, Africa accounted for total cumulative productivity of only 4.01% of the world's production and 3.31% of the value when compared to the rest of the world (Kamuri & Ngugi, 2019). Generally, the total value of leather products in Africa is substantially lower in terms of quality, quantity and value-wise. A look at Ethiopia, the leading leather processing country in Africa, the export share in the world is negligible. The export share was, on average, only 0.00023% over 2010-2015 and 0.000597 % in 2017 (Kassaneh and Workalemahu, 2018).

The Ethiopian leather industry is placed at the forefront in the African leather sector in line with its existing competitive advantage for raw material needs (first in Africa and tenth in the world in cattle population) (UNIDO, 2021). The growth trend in livestock population (goat, sheep and cattle) also indicates that the sector has the potential to become the country's main economic source in the future. The cattle population has increased from 54.5 million in 1996 to 77.5 million in 2006 to 103.5 million in 2013 (FAO, 2015). These resource potential makes the leather sector to be a good candidate for a concerted effort to expand production and meet international competitiveness. The leather industry is especially significant for the economic development of Ethiopia by reducing the high rate of unemployment caused by the fast growing population and generating income through exports (Tsega et al., 2022). Despite the aforementioned indigenous resource potentials, Ethiopia's leather industry has failed to fully utilize its resources to an appreciable extent. It considerably lags behind numerous countries that have less abundant indigenous resources (Netsanet Jote, 2014). The industry is plagued with major problems, both in the production of raw materials and in the manufacturing stages. The tannery and footwear manufacturers operate at 44.97

percent and 47.6 percent of daily production capacity, respectively. Whereas, the daily installed capacity of leather goods and garment producers is ranging 20-150 pieces/day, but the actual output ranges from 10-60 pieces of garment/day (LIDI, 2020). Export performance of the industry is also stagnated below average. For the period of 2005-2009, footwear producers performed, on average, only 27.55% of the planned export value. Similarly, tannery's export value was quite below of the projected plan for the same period. Figure 1 shows the plan and actual export value of the Ethiopian leather industry (ELI) for the period of 2005-2013. Export performance report of the industry for this period was achievable to only 56.89% of the projected export plan. Furthermore, the industry's actual average production falls significantly behind the international benchmark standards. In 2019, for example, footwear manufacturers produced 4 pairs of shoes/day/person, indicating low operational performance and production efficiency when compared to international benchmarks (i.e. 16 pairs of shoe/day/person) (LIDI, 2020). As a result, the country could not obtain the expected economic return from its huge resource potentials. In the past years, the loss to the Ethiopian economy is estimated to US $14 million per year (Geremew, 2014)

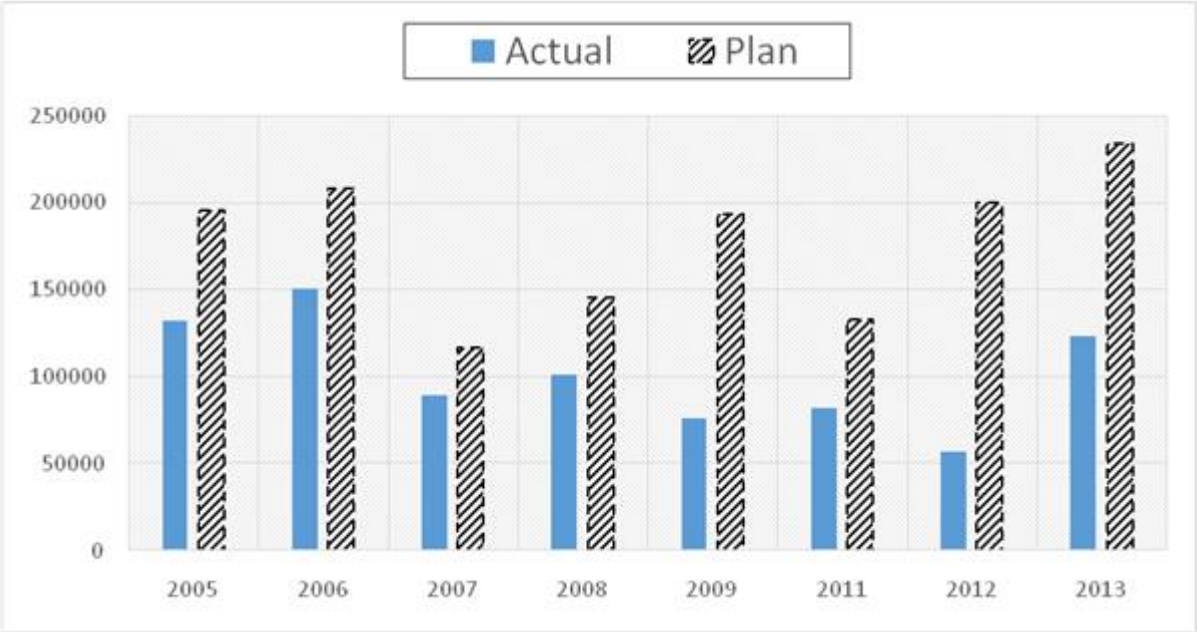

Figure 1.2 Export performance of the leather industry of Ethiopia (000' USD) (2005-2013)

Source: Export performance report from LIDI in 2014

Previous studies revealed that the nature of problems are multifaceted that seem to explain underperformance of the ELI (Addis, 2019). Some of the problems are low utilization of capacity, shortage of raw materials (e.g. processed leather for footwear manufacturers), production delays, bottleneck at workstations, lack of an efficient market structure, financial constraints and lack of latest technologies (Andavar et al., 2021; Tsega et al., 2022). If Ethiopia has to fully exploit its resource potentials, it is required to address the manifold problems in value chain of the leather industry. Particularly, it is critical to resolve constraints downstream to the manufacturing stage, because higher stages of manufacturing activity enable businesses to attain higher levels of operational performance and meet the challenge of global competition (Addis, et al., 2017). According to Amrina and Yusof (2011), critical success factors (CSFs) (such as quality, cost, flexibility, delivery and innovation) are appropriate strategies to enhance manufacturing performance of organizations. The role of the CSFs is to reflect the current condition of manufacturing situations, monitor and control operational efficiency, drive improvement programs, and guide the effectiveness of manufacturing decisions. The CSFs are the most widely cited measures for evaluating the performance of manufacturing organizations (El Mola and Parsaei, 2010). Addis, et al. (2017) also identified the CSFs as having a persistent impact on operational performance of the ELI. Accordingly, the main objective of the study is

- to evaluate the performance of ELI under the light of the CSFs.
- to identify performance gaps of the industry via benchmarking with competitive leather processing countries in the world (China and Italy).

2. Critical success factors (CSFs)

Manufacturing performance is crucial to the success of various organizations, because competitiveness relies on superior performance. Hence, organizations must analyze their performance regularly in order to remain competitive in the global market (Afum et al., 2020). Performance evaluations can be used to guide organizational development, analyze historical performance and set future performance targets (Bortolini et al., 2018). Performance improvement factors such as CSFs essentially define what has happened and what will happen based on the information they provide to decision makers

about the organization's competitive position (Moktadir et al., 2020). The role of CSFs is to reflect the current condition of manufacturing situation, monitor and control operational efficiency, drive improvement programs, and assess the effectiveness of manufacturing decisions (Al-Tit et al., 2019). The CSFs also denote a strategic focus on establishing specific manufacturing capabilities that could improve position of organizations in the marketplace. Such a focus may guide decisions about the manufacturing process, technology, planning and control, and capacity (Stankalla et al., 2018; Moktadir et al., 2020).

Over the decades, majority of researchers are concerned with the rigorous identification of a set of CSFs in various areas. After an extensive review, El Mola and Parsaei (2010) identified five basic CSFs (quality, cost, delivery, flexibility and innovation) that are commonly acknowledged in the manufacturing strategy literature. Addis et al. (2017) also identified them as the five most commonly cited factors to evaluate manufacturing performance of companies in the Ethiopian leather industry. Those CSFs are believed to collectively contain strategic assets that help manufacturers achieve their organizational goals (Amrina and Yusof, 2011). El Mola and Parsaei (2010) also underlined that performance evaluation of organizations should include a comprehensive set of CSFs that must be measured and embedded into organizational performance. The importance of using a set of CSFs in manufacturing organizations has also been discussed in literature (Moktadir et al., 2020). Indeed, manufacturers, particularly world-class manufacturers, recognize the value of CSFs, and they construct and measure a set of CSFs to assess the effectiveness of their production systems (Dangayach and Deshmukh, 2006; Hayes and Pisano, 1996). As a result, the CSFs are thought to be vital and relevant, and therefore will be employed for the development of the present study. An attempt is made to evaluate the performance of ELI under the light of the CSFs. Performance gaps of the industry are also identified via benchmarking with competitive leather processing countries in the world. Table 1 presents the CSFs with their descriptions

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Table 1: Critical success factors with descriptions

Critical success factors	Descriptions
Price	Product selling price, market price and distributions of products at low cost
Quality	Manufacture of products with high quality and conformance to performance standards
Delivery	Reliable (on time) and fast (short delivery lead time) delivery of products
Flexibility	Ability to handle product ranges and product mix changes,
Innovation	Finding new design of products and improved methods of manufacturing processes

3. Method

Both primary and secondary data were collected. A panel of experts were participated in this study, with backgrounds ranging from Chief Executive Officer (CEOs) of the leather industry to experts in the leather industry development institute (LIDI). High and middle level managers were also considered from the leather and leather products manufacturing companies in/around Addis Ababa. The experts in LIDI are experienced researchers and engage in benchmarking the leather companies. Open interviews were used to obtain a deeper understandings of the working conditions of the companies in the ELI. Moreover, data were composed from literature and documents from LIDI. The data collected from the interviews were analyzed qualitatively that enabled a deeper understanding of organizational performances. The development of themes, often known as thematic analysis, is a typical method of approaching qualitative data analysis (Bryman, 2004). This type of analysis is common when the data collection is organized around the predefined themes. In this study, the discussions were conversational and general questions were posed concerning each of the CSFs. After arranging all of the data from the interviews, they were evaluated to understand the positive and negative emotion associated with the various themes (Onwuegbuzie et al., 2009).

Tools such as spider chart and cause and effect diagram were used for the data analysis. The spider chart was used to study performance gap analysis between the ELI and the leading leather processing countries

in the world. Cause and effect diagram was used to illustrate the interrelated problems that seem to explain the performance of ELI. Moreover, the study conducted SWOT (strength, weakness, opportunity and threat) analysis oriented towards determining dimensions that are important to upgrade participation of the ELI in global value chain.

4. Results and discussion

The main objective of this study was to evaluate the performance of ELI under the light of the CSFs and benchmarking with the leading leather processing countries in the world. In this section, the results are presented and discussed. Initially, the performance of the ELI is analyzed, followed by benchmarking the ELI with the performance of China and Italy. Subsequently, the cause and effect analysis is conducted, followed by the SWOT analysis.

4.1. Performance evaluation with respect to the CSFs

It is described that the performance of the ELI is not comparable with its indigenous resources for the raw material needs. In this section, the current performance ratings of the ELI in the final markets are evaluated with respect to the CSFs. The performance evaluations can be seen from the spider chart in Figure 2. From the spider chart, it is clearly shown that the ELI is conforming to the buyer perception only in price. The price competition is successful for Ethiopia because of the abundance of raw material and cheap labor force. However, there are big gaps in the other CSFs. In low-income final markets, price can be a relatively important CSF, but it will not be unique. In higher income final markets, non-price CSFs (such as quality, flexibility, innovation and others) are generally more important. The major buyers or consumers of leather products of Ethiopia are EU markets like Italy, Germany, Netherlands and France with percent share of 63.17%, 23.54%, 2.87% and 1.04, respectively (LIDI, 2020). These markets are very conscience of non-price CSFs. The ELI should focus on the non-price CSFs for nourishing success in the market. The major and most important CSF for success is the *quality of products*. Ethiopian leather is known for its high reputation in the global market because of its natural quality (Netsanet, 2014). However, the leather products are not performing good quality. It is revealed from the interviews that the ELI is not implementing quality management philosophy yet. For instance:

- quality is not taken as the task of everyone
- quality control activities are limited on inspection
- no formal documented way of identifying quality problems and taking corrective actions
- no/limited application of statistical process control techniques
- no determination of quality costs
- no standard procedure for processes**.**

Moreover, there is high rework, scrap, rejection rate, defects, and quality costs, mainly in the footwear manufacturing companies. For instance, the standard benchmark level for scrap and rework is 5%. However, the cutting yield of Anbesa shoe S.C is 85% with 15% scrap (Tomas, 2011). Also, Anbesa measures rework level as 11%. Annual cost of rework is determined as around $20,475, which reduces production efficiency of the company (LIDI, 2020). In general, the ELI should be committed to design an improvement action plan to improve quality performances as it gratifies crucial values for organizations by satisfying and retaining their customers (Dangayach and Deshmukh, 2006). According to Anderson and Sullivan (1993), customer satisfaction is often regarded as the prime measure of external quality performance.

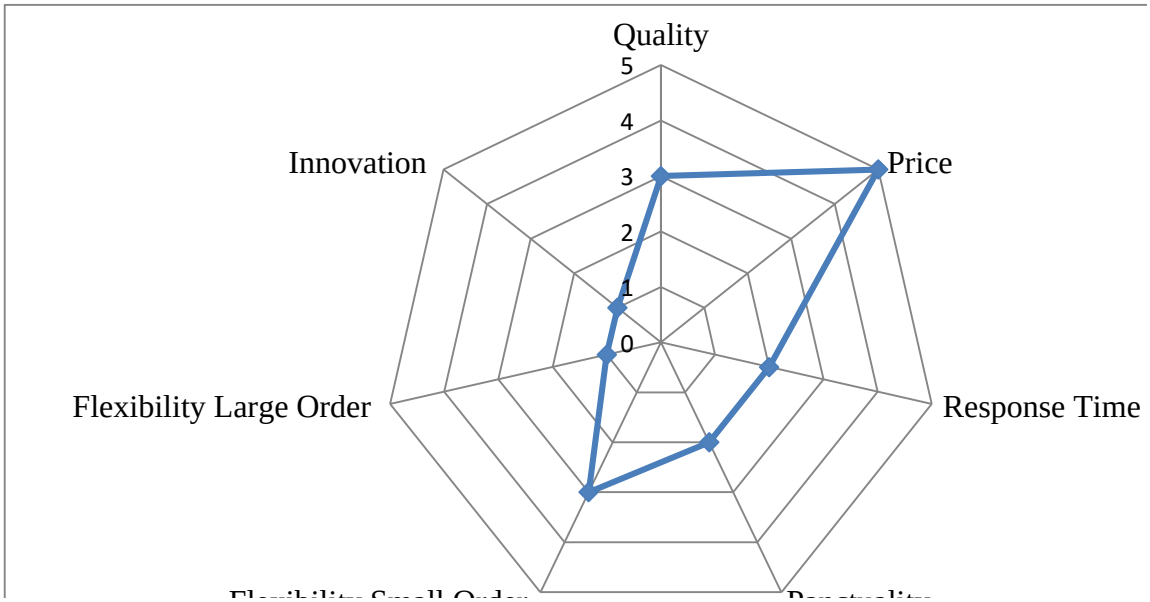

Figure 2: Performance profile of Ethiopian leather industry

Delivery is another important CSF for the success of any organizations. According to Hallgren (2007), delivery reliability is sometimes referred to as on-time delivery or delivering according to a promised plan. It can be shown in Figure 2 that the response

and punctuality of the ELI to orders is not satisfactory. The delivery problem basically occurs due to the machines being failed and power interruption in the industry. The downtime increases manufacturing lead time and ultimately influences delivery performance. These problems make manufacturing effectiveness of the ELI (operational planning efficiency) is not well attained (Tesfaye, et al., 2014). The industry should give much attention on planned maintenance management system to increase machines availability. In addition, the major reasons for low delivery performance are:

- delay in raw material supply
- lack of well-designed supply chain network
- workers' efficiency and responsiveness problems
- bottlenecks in the production line (unbalanced production line)
- ineffective motions in the shop floor

Within the manufacturing operations, the ability to adjust production volume and the ability to change between products are the two most influential flexibility types (Chaudhur et al., 2018). Small order flexibility of the ELI is relatively good because of limited batch production capacity of the manufacturers and minimum need of financial stability for the production of small quantities. On contrary, it is very difficult for the ELI to be flexible to large orders as the companies are not large enough to carry out batch production of different designs effectively. Also, flexibility problem exists as there is no practical system for the development of new products based on global demands. In fact, footwear manufacturers try to manage variations in volume and products with large manufacturing lead time. However, the industry in general has to be committed to employ machine flexibility, systems flexibility, product flexibility, routing/layouts flexibility and volume flexibility. Also, emphasis should be placed on research and development to offer a variety of products based on global demands.

Innovation is the least performed CSF for the ELI. This is the effect of low skill of designing, fashioning, less accessibility to fashion forecasts, low skill of product development and research.

4.2. Benchmarking

Benchmarking is a process in which a company compares its performances with best practices from other companies (Sangwan and Choudhary, 2018). In this study, benchmarking of the ELI is conducted against two countries with more

technically advanced in leather industries in the world. It is clearly shown in Figure 3 and Figure 4 that there is high deviation between the performance of ELI and level of performance of China and Italy with respect to the CSFs. The CSFs are relatively more important for Ethiopia since the major consumers of the leather products are US and EU markets, which are very conscience of the CSFs. The ELI should alleviate the performance issues to realize the industry's vision of becoming globally competitive and economic benefit of Ethiopia from the industry.

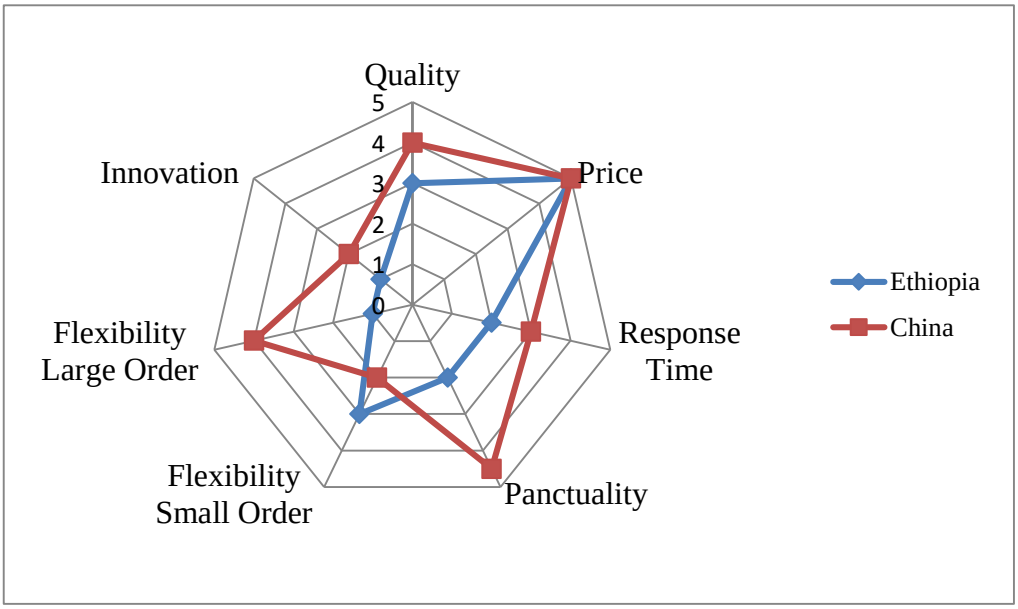

Figure 3: Performance comparison, Ethiopia-China

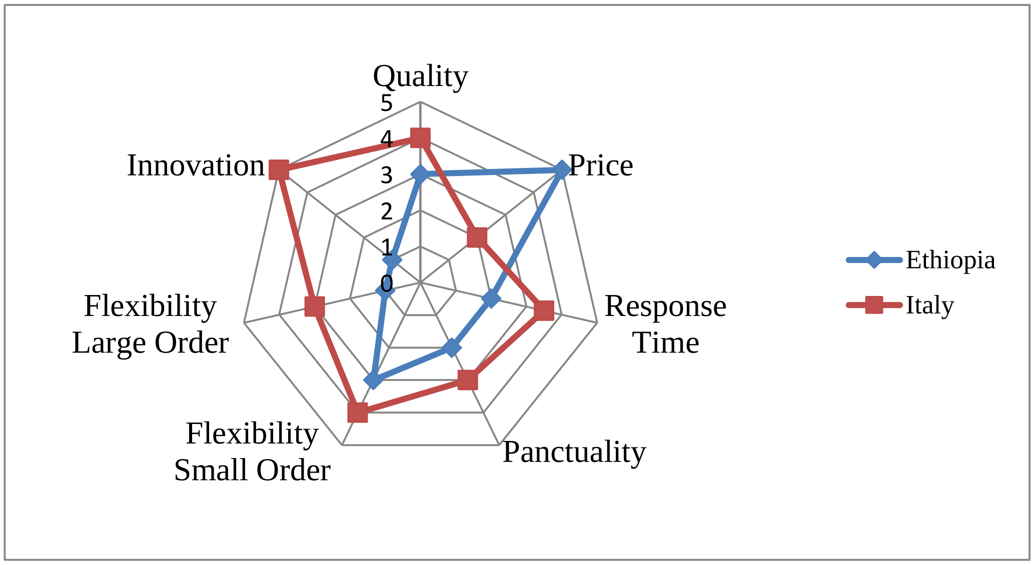

Figure 4: Performance comparison, Ethiopia-Italy

China	Italy	Ethiopia	Recommendation
China is considered as a very cheap source of leather goods with consistent product quality and the ability to handle large standardized orders. Chinese suppliers are suitable for supplying the huge price-driven orders from the US retail chains.	Italy is extremely capable of providing innovative designs of products. Buyers that supply high street boutiques would seek to Italy for small and high fashion orders. Products are expensive and afforded by high class customers.	The material quality is excellent, but the quality of products (in terms of design) is poor. The products are very cheap. Other competition factors, however, are hardly comparable by customers perception.	For Ethiopia, the current performance will make no longer competent in the export market. Values should be added to the products and offering improvement suggestions. It is wise for Ethiopia to upgrade to China's performance to occupy the market and then proceed to the performance of Italy.

4.3. Cause and effect analysis

Cause and effect diagram (fishbone diagram) was developed by Ishikawa (1976). It is used to determine and break down the main causes of a given problem. In this study, the cause and effect diagram is used to illustrate the relationships between the unsatisfied performances of the ELI and the causes influencing it. The analysis also aids in identifying the root causes of performance problems and the offering improvement suggestions. The study synthesizes the identified performance problems by categorizing them into the four basic CSFs (quality, cost, delivery and flexibility). The cause and effect analysis is shown in Figure 5.

It is revealed from the diagram that the CSFs are the main cause for the low performance of the industry. low utilization of capacity, shortage of raw materials (e.g. processed leather for footwear manufacturers),

production delays, bottleneck at workstations, lack of an efficient market structure, financial constraints and lack of latest technologies are some of the problems of the industry. To improve its performance, the industry has to address the manifold problems in value chain of the leather industry. Particularly, it is critical to resolve the CSFs as they are appropriate strategies to enhance manufacturing performance of organizations, and drive improvement programs, and guide the effectiveness of manufacturing decisions. Generally, the CSFs can be a strategic focus of the industry that must be measured to improve position of the industry in the marketplace.

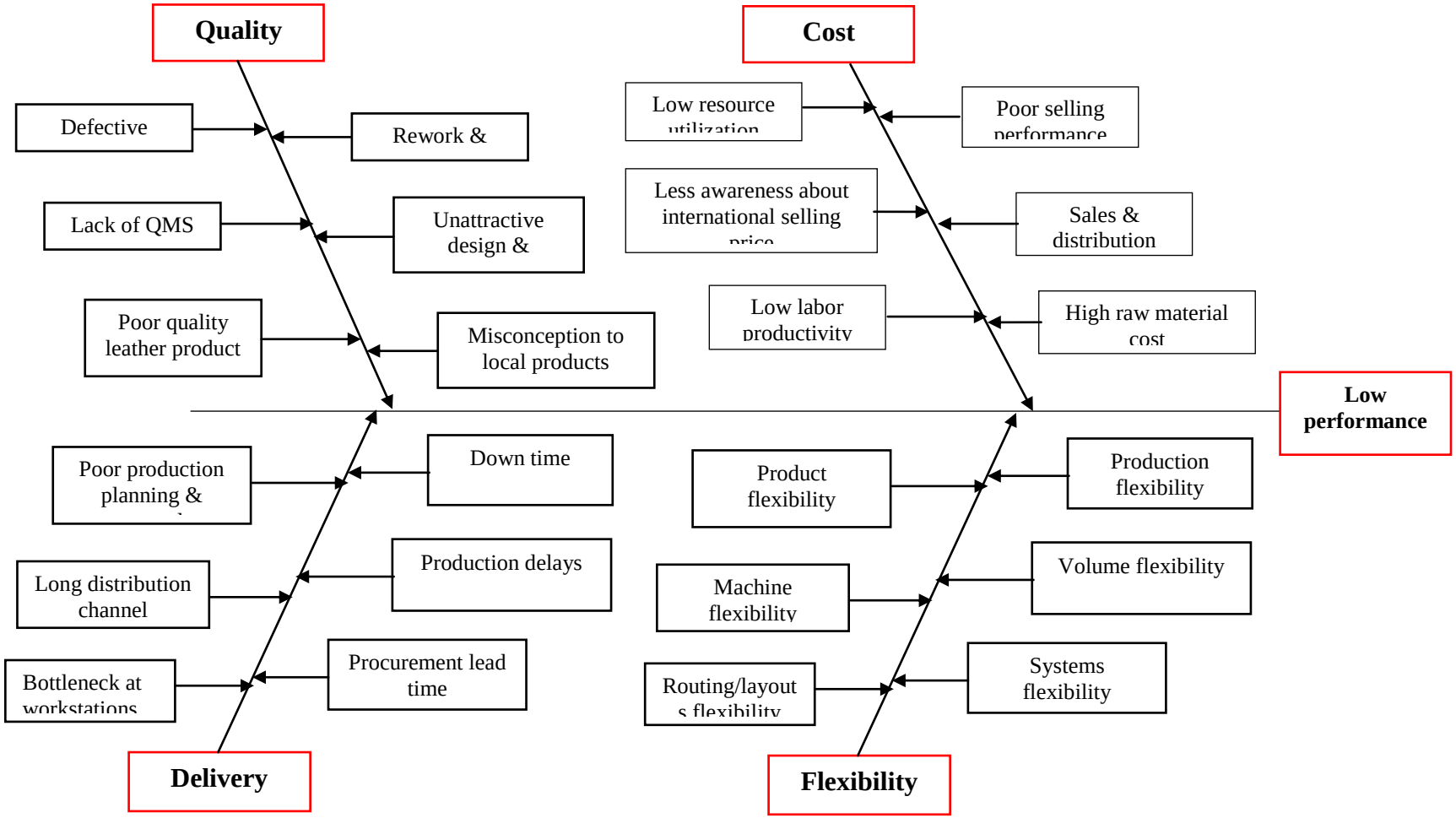

Figure 5: Cause and effect analysis

4.4. SWOT Analysis

In this section, strengths, weaknesses, opportunities and threats have been presented for the ELI as a whole. The SWOT analysis is conducted to identify dimensions that are important to upgrade participation of the ELI in global value chain.

Strengths	**Weaknesses**
✓ Policy initiatives taken by the government to ban export of semi-processed leather ✓ Large raw material base ✓ Good sheep and goatskins properties ✓ Good reputation of finished leather for leather products ✓ Exports of footwear and leather garments ✓ Long and short term training for societies in the industry ✓ Market access through: Common Market for Eastern and Southern Africa (COMESA); European market trade relations with the Africa, Caribbean and Pacific EU/ACP; European Business Association (EBA) ✓ High capital growth of industries ✓ Existence of research and development department ✓ Emergence of large number of enterprises in different regions of the country	✓ Poor resource utilization ✓ Long hides and skin trade supply chain ✓ Deterioration of quality of hides and skins ✓ Shortage of quality leather ✓ Weak advertisement for the products ✓ Lack of marketing strategy ✓ Absence in the global fashion market ✓ Unawareness of international standards ✓ Old technology, obsolete equipment; lack of spare parts ✓ Weak design capabilities ✓ Shortage of differentiated accessories, components, soles and etc. ✓ Poor workmanship ✓ High level of rework and scrap ✓ Lack of introducing modern management systems such as quality management ✓ Unplanned machine maintenance ✓ Small variety of products
Opportunities	**Threats**
✓ Export-oriented industries are supported by the government ✓ Huge internal market for the product ✓ Availability of promotion of joint ventures and foreign direct investment	✓ The growing spread of livestock diseases ✓ Uncontrolled imports of second hand leather products like shoes ✓ Competition from Asian and European Countries

✓ Competitive advantages for the known Ethiopian sheepskins property ✓ Regional and sub-regional market for leather products like COMESA ✓ The creation of a trade mark as "Made in Ethiopia" to enhance product image	✓ Dumping of leather goods from developed countries ✓ Machines expensiveness ✓ International price fluctuation

5. Conclusion

Nowadays, organizations must measure, analyze, and improve performance in order to keep up with increased competition in an ever-changing business environment. This study examined the manufacturing performance of the ELI and also benchmark the performances with the leading leather processing countries in the world (China and Italy). It is revealed that there is high deviation between Ethiopia and the competitive countries with respect to the CSFs. The study identified interrelated problems that seem to explain underperformances of the ELI. Different dimensions were also identified that are important to upgrade participation of the ELI in global value chain. The industry should alleviate the identified problems and dimensions to improve organizational performance and competitiveness. The findings may give a snapshot for the industries, policymakers, decision makers and strategic planners to easily understand the nature of the CSFs during formulation of action plan for improvement activities.

As a future research, studies can prioritize the CSFs based on their relative importance to drastically enhance the performance and competitiveness of ELI. Studies can also develop suitable mathematical models in order to measure the performance of the manufacturing system.

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