
Improving Quality of Leather Products using Root Cause Analysis: A case Study of Kings International Limited

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Abstract

India's leather industry holds a good position in the international market and this industry is a big source of foreign exchange earnings for the country. The primary objective of this research is to identify factors which are critical to quality of leather products.

The study is based on the quality problems at Kings International Limited through detailed analysis of five cases on problems of quality. This research takes up case by case to identify the root cause of quality problems and then solutions were suggested for each case to improve quality. The research observed that maintenance of quality was absolute necessity in leather industry as buyers would not compromise with the quality of leather products. They would be loyal to the company only if the company provided them with high quality goods. They would buy goods from other companies if there were no quality issues in the products of a company. This study highlights that Kings International Limited understands the importance of quality in leather products and endeavors for providing the best quality products to its customers. The study makes a sample survey to highlight consumers' strong preference for quality.

Key words : *Leather products, quality and root cause*

Introduction

Maintaining superiority of Quality of products and services as compared to those of competitors, is an essential and distinguishing attribute. It is very important for any company to produce goods that are of standard quality or provide better services than its competitors. Success of a company depends upon the quality of products that it manufactures. In case of service companies, success depends upon quality of service that it delivers. Customers are ready to pay high prices for quality products and services. Quality adds revenue to the company because superior quality products are sold at higher prices. In most of the companies, departments are designated to inspect the quality of products or services according to the standards specified by the company. For example, the most popular quality management framework applied is ISO 9000 & TQM. The first step

in a quality program is to link the quality concept with the company's business objectives. In manufacturing industries, it is a tool for measuring excellence and free from defects and variations. The pressure arising from competition has made manufacturing firms to move towards three competitive areas: quality, responsiveness & cost. In order to remain competitive, manufacturing firms must continuously monitor their processes and check that the product quality is improved.

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In manufacturing Firms, quality is tested, regulated and certified. Diverse methods, models and standards are set to test the quality. There are some basic standards which can be used to identify major issues related to quality. These tools are Cause & effect, Control chart, Check sheet, Scatter Diagram, Histogram, Flow Chart, and Pareto Analysis.

Any Manufacturer needs to consider needs and expectations of the customer. Quality policy should be designed in such a way that the manufacturer delivers the right quality product to the customer. The customer experience is defined as the sum total of all the interactions that they have with the company's services or products. Customers view quality in many ways such as how the product is sold, how durable it is and how well it fulfilled the purpose. Companies take feedback from the customers regarding product quality so as to overcome shortcomings in the product quality. Quality of products and services should be judged from the angle of the customer.

Quality management techniques are adopted by a company to maintain the quality of its products and services to bring at par excellence the quality of its products or services. For example, Total Quality Management, Six-Sigma, JIT, Pareto Analysis, cause and effect relationship etc. Quality Control (QC) are process through which companies examine all aspects of quality of production. ISO 9000 fulfills quality requirements as a part of quality management system. QC includes product inspection where each & every product is examined visually. Most of the quality control techniques are of statistical in nature. It sometimes uses a stereo microscope for fine detail before the product is sold in the market. To implement an effective QC program a company must set specific standards for the product or service. Quality Assurance (QA) is a way of preventing defects or mistakes in the manufactured product that can avoid problems when services or products are delivered to customers. It refers to the procedural & administrative activities implemented in a quality system so that goals for a product or service can be fulfilled. In quality assurance the results are compared with the standards. Following two principles are maintained for the quality assurance:

- **Fit for Purpose-** the product should be able to serve the purpose.
- **Right First Time-** all the defects and mistakes should be eliminated, before the product reaches the market.

Leather industry in India

Quality in leather industry

Like any other industry quality plays an important role in leather industry. In the leather manufacturing process, the quality is checked at each stage of production i.e. from selecting the supplier of raw materials to the final products for end users. ISO 9000 is the acceptable quality control standard for leather industry in India. Most of the tanneries check the quality of leather produced in their factories according to this standard. Since it is necessary to use good quality of raw of hides and chemicals, there are wide ranges of tests carried out in the lab for assessing the quality of leather. Chemicals like sulfuric acid, lime, sodium sulfide etc. and tanning agents like chrome tanning extracts, dyes, and finishing aids should be tested periodically for quality. The government of India has also established chemical testing laboratories for a cluster of tanneries in a particular area that can solve their day to day problems and maintain quality standards in their products. Microscopically and bacteriological treatment serves as a quality control tool on raw skins, semi-finished & finished leathers. These tests are carried out to ensure that the leather is free from any bacterial damage. Stains, defects and discoloration can also be judged by these tests. The bacterial tests give the preliminary indications about the presence of bacteria in the salted hides. There are quality control measures ensuring that the leather produced is of standard quality. Quality should be checked at each stage of production process to ensure the quality of final product such fungus, cracking of leather, color fading etc. Immense competition in the leather industry has forced each and every manufacturer to produce goods of superior quality. There is a famous quality control & quality assurance service agency named "**IMPACTIVA**" which ensures clients get the leather exactly as per their needs. Impactiva's technicians examine each hide carefully to see that whether there are any defects or not.

Besides IMPACTIVA there are some renowned inspection agencies like **SGS, Intertek, Bureau Veratas**, etc.

Kings International Limited: A case study for quality management

Kings International Limited was established in 1977 in the leather city of Kanpur. The company was started by Mr. Taj Alam who is the present Managing Director of the company. Due to its appropriate business climate & industrial history, Kanpur is the perfect place for the availability of skilled and trained manpower, curators of fine leather and a hub for leather products. The vision of the company is to become the best in the global market by the end of 2015. Their mission is to delight each & every customer by providing quality products and services.

Kings began as a small family business more than thirty five years ago and has grown itself to become one of the most trustworthy and dependable producers of quality equestrian products, serving customers from North America to Middle East, and from Australia to Europe. In 1995, the company made backward integration of a captive tanning unit to produce its own leather from selected Indian buffalo hides and imported European & Australian ox hides to serve the customers in an effective and a better way. Later the company also started producing leather products such as leather belts, leather wallets, leather bags, dog collars, hunting accessories and other horse riding goods such as harness and saddle. Each of the company's product is produced with utmost care by artisans who are skilled in their field of work. Each single item of product is checked for maintaining high standards of quality. Today the company has become a multi-product and multi brand export house standing out in many ways. Kings International Limited is honoured with numerous awards and recognitions for outstanding export performance, designing, marketing, fair business practices, quality control and successfully implementing various management systems.

The company's customer base covers reputed chain stores, exclusive distributors or wholesale importers, mail order houses & online stores across the whole world. The company sells the products of its own brands in the international markets as well as produces

goods for other companies too. Each of the brands specializes in a particular range of products. There are six brands of the company:

EQUITEL- It is the range of premium equestrian products handcrafted from genuine European and Australian ox hides.

KINGSTON RANGE- It includes saddlery & harness products made with Indian buffalo leather.

TARGET- It includes traditional & modern hunting accessories like gun covers, holsters, cartridge belts and ammunition bags made with high quality leather.

RYDER BELTS- It includes casual & fashionable leather belts.

PETS' PAL (Pets accessories) - These pet's accessories are available in a variety of imported & indigenous leathers.

FITWEL- This comprises of leather gloves, leather bracelets, leather cuffs, leather socks & shoes.

The company handles its international marketing operations directly from United Kingdom. The leather produced by the tannery is Green, Eco Friendly & Compliant i.e. free from harmful chemicals. The company uses vegetable tanning extracts like Wattle, mimosa and chestnut. The tannery has its own Primary Effluent Treatment Plant (PETP) & CRU (Chrome Recovery unit) for managing the environment. For the secondary & tertiary treatments the PETP is connected to a Common Effluent Treatment Plant (CETP) thereby complying to Corporate Responsibility for Environment Protection (CREP). The belief of the company is that the method is as important as the final product. The workers comply with the highest standards of cleanliness and protection to promote a happy & healthy work environment. There is an in house chemical testing laboratory for testing the chemicals used in the manufacturing of leather. Besides this, the company also takes services of external laboratories like Intertek to check the quality of its leather products. The company satisfies the customers by continually improving the process related to environment, health/safety, quality & social accountability complying to all legal requirements. The company is a member of Leather Working Group

(LWG). The company is committed to review its social & other policies regularly in compliance with new laws, cleaner technology, regulations and better quality. The semi-finished product is inspected at each and every stage of production process and if there is some problem in the quality of the product then the product is sent back for rework and if can't be reworked, then it is rejected. If the product is passed, then it is sent for further production process.

The company has maintained its standards under various categories i.e. quality, social accountability, occupational health and safety management and environment management system.

- Quality Management system-The Company is an ISO 9001:2008 registered.
- Social Accountability System-The Company is an SA 8000:2008 registered.
- Environment Management System-The Company is an ISO 14001:2004 registered.
- Occupational Health & Safety Management System-OHSAS 18001:2007 registered.

Quality management at Kings International Limited

- The company has maintained quality in its goods and is an ISO 9001: 2008 registered which is a certificate of registration by BSI under quality management system. The company is also a member of Leather Working Group (LWG). It is among the few tanneries in India and the only tannery in north India which is a member of LWG.
- Kings International Limited has appointed Quality Control Manager who looks after the maintenance of quality in leather and leather products. The role of quality control manager is very important at Kings International Limited because if there is any defect in the product then he will be held responsible. The quality control manager checks the quality at each and every stage of production process.

Quality control manager checks that the raw materials are of standard quality. He is responsible for the proper selection of suppliers for raw materials, chemicals and all the other things that are used in the production process.

- The company has got highly skilled and trained manpower that specializes in their area of work. These workers manufacture the product with their best capability. Workers are given prior training in case if some changes or innovations are to be made in the product. Besides this the company has got imported machines for each and every process. There is a machine for every process like strap cutting, component cutting, splitting of leather, straightening of leather, moisture gauge for moisture testing. The company also does online quality inspection of its goods to ensure that there are no defects in the goods.
- The company has got its own chemical testing laboratory for testing the chemicals used in the manufacturing of leather. This laboratory is to ensure that the chemicals are not harmful for the hides and are of standard quality. Besides this the company also takes services of external laboratories like Intertek, SGS, IMPACTIVA, Bureau Veritas. These external agencies are appointed to see that the leather produced is of standard quality.

The company has got a different area for the inspection of goods. In that area, goods are inspected very carefully. If there are some shortcomings in goods, then they are sent back for rework and if they can't be reworked then they are rejected. Goods are only passed if there are no defects and the quality is up to the mark.

Results and Discussions

The results obtained from the survey are presented in the table-1, and is followed by interpretations.

Table 1 : Results based on responses :

Questions	Responses			
Are you satisfied with the quality of leather that Kings provide ?	Highly satisfied	Partially satisfied		Not satisfied
	30	15		5
What factors do you see while purchasing leather or leather products ?	Quality	Design		Price
	35	6		10
Which company's leather quality is the best ?	King International Limited	Super house	Mirza International	Modern Tannery
	15	15	15	5
Are you satisfied with the quality of packing, branding and bar-coding ?	Highly satisfied		Satisfied	Not satisfied
	35		15	0
Is the product quality always compliance to your specifications ?	Yes		No	
	40		10	
If price of other company's leather will decrease will you stop purchasing from Kings ?	Yes		No	
	40		10	
Will you buy Kings Leather or Leather products at Low cost of negligible quality ?	Yes		No	
	5		45	
Will you purchase another company's leather of same quality with less price ?	Yes		No	
	30		20	
How do you rate the quality of leather or leather products of kings International Limited ?	Excellent	Good	Average	Poor
	25	20	5	0

Table 2 : Results based on responses :

Questions	Responses	
Has the quality of Kings leather improved in the last 5 years ?	Yes	No
	30	20
Were there any problems of color fading in the leather or leather products. That you have purchased from kings International Limited ?	Yes	No
	10	40
Were there any problems of fungus in leather of Kings International Limited ?	Yes	No
	4	46
Were there any problems of cracking of leather in Kings Products ?	Yes	No
	5	45
Have you ever found marks or stain on Kings leather products ?	Yes	No
	5	45

Table-1 indicates that 60% of the customers of Kings International Limited are highly satisfied with the quality of leather that the company provides; they believe that company's leather is best when it comes to quality. They prefer to buy leather from Kings instead of any other company. Whereas 30% are partially satisfied because sometimes there is problem in the quality of leather that company manufactures because of fungus and other problems. Only 10% are not satisfied because goods supplied to them are defective. These are the customers who always complain about the defects in the products.

It is very necessary for the company to retain each and every customer. Therefore, the company should find out reasons why these 10% of the customers are not satisfied and work hard to satisfy them.

It is observed that 70% of the buyers see quality while buying leather because quality is a critical factor in leather rather than the price. 20% said that they see

price while buying a product because these customers are located in the local region of Kanpur and Unnao region and customers in these region are more concerned about the price rather than anything else. Remaining 10% said that they prefer the design while buying a product because some company's customer base consists mainly of the youths and youths are more concerned about the design of the product particularly in the belts section. Thus, it is the need of the company to pay more and more emphasis on improving the quality of the leather as most of the customers are concerned about the quality. The company should concentrate on other factors too.

The companies who are the customers of Kings buy leather not only from Kings but also from some other tanneries. Here, we see that 30% of the customers believe that Kings leather has got the best quality, 30% of the companies said that Mirza's leather has got the best quality, 30% of the customers voted for

Superhouse, and remaining 10% of the customers said that modern tannery produces the best quality of leather. Here, the company should try to find out reasons that why 70% of the customers prefer other company's leather over Kings Leather because each and every customer is valuable to the company.

When it come on the quality of packaging, bar-coding and branding, customer are highly satisfied because company give special emphasis on these things and never gets complain from the customers regarding this. Further, we see that 80% of the buyers said that the product quality from the company is always according to the specifications. These customers are fully satisfied because the product quality is always according to their specifications. The company should try to find out the root cause of the product not getting matched with the sample so as to stop getting complaints from the 20% customers.

Only 20% of the customers said that they will switch over to other brands because these customers are price conscious while 80% of the customers said that they will stick to Kings irrespective of the rise in price because these customers are quality conscious. About 90% of the buyers said that they will not buy Kings leather or leather products at low cost with negligible quality, thus it can be interpreted that most of the buyers are concerned about quality as it is a very critical factor in leather industry. Remaining 10% who said that they can compromise with quality if the prices are reduced are the local buyers in Kanpur & Unnao region and these buyers have local customers and those customers are not willing to pay higher prices. Thus, it is clear that quality is a critical factor in leather industry. Not surprising, 60% of the customers are ready to buy goods from other companies if the prices are lowered without impacting quality of the products. It is obvious, because customers look for quality at minimum possible cost. Kings International Limited needs to ensure that they can also deliver best quality products at a reasonable cost.

Respondents (60%) claimed that company has done a lot to improve the quality of leather and leather products in the last 5 years. Whereas 40% of the customers said that the quality has not improved. It is a matter of concern for the company. Although most of the respondents indicated that they never come across the problem of color fading in Kings Products

but, 20% of the buyers complained about color fading in the leather products that they have bought from Kings. The company should try to find out the root cause for color fading so as to produce high quality goods and to stop getting complaints from the customers. Very few customers complained that there is problem of fungus, cracking, and stain in the companies leather products.

From the results and discussions, it is very clear that quality is the utmost requirement in the leather products. In today's competitive environment companies cannot afford giving customers a chance to comment negative on the product quality. To verify on these responses. researchers decided to observe the processes at Kings International Limited and find out the root cause for these non-conformities.

Quality problems managed at Kings International Limited :

During the research work, it was found that the company is facing some problems related to quality in leather and leather products. Details are discussed and root causes are found out as follows:

Issue-1

In the year 2013-2014, there was problem of fungus in leather and leather products. Though anti fungus agents were applied about 5% of leather was damaged. The company received complaints from buyers.

Impact on product quality: Fungus is one of the significant issues within the leather industry. It has a very bad effect on the product quality. Fungus can cause changes in the color of leather and an unpleasant smell on leather and in some cases, it may permanently damage the product which is a huge cost for the company.

Root cause for fungus at Kings International Limited: The main cause of fungus at Kings was that the quality of the chemicals used in the manufacturing of leather was not good. The leather was not put under proper temperature. It didn't go through proper heating process. Moreover, the quality control manager was a newly appointee and didn't have much knowledge about these procedures.

Solutions based on root cause analysis: First of all, it is advisable to the company that proper training should be given to the Quality Control Manager so that he can perform the job at his best. Fungus prevention policy should be started at the factory premises. The fungus prevention policy should cover the following areas:

- Understanding the cause of fungus and how it happens.
- Preventive measures to avoid fungus.
- Tracing the root cause of fungus.

This fungus training program should target the suppliers of the company, quality control and production managers of the company. Through this, training managers can gain technical knowledge so that they can apply it in their daily practices. Cleanliness and moisture control of the product should be done at the factory premises to reduce the risk of fungus. The quality control manager should check the humidity and ventilation of the manufacturing site. The leather should go through proper heating process. The environment should be favorable during each stage of manufacturing, storage & shipping. The quality control manager should investigate the areas of manufacturing, storage and packing during the fungus prevention policy. For better assurance, the company should take services of SGS so as to gain knowledge of fungus issues on leather products and raw materials.

Issue-2

In the year 2013-2014, there was the problem of color fading in some of the leather products produced by Kings. The top color of around 10% of the saddles which were supplied to Decathlon was rubbed within two hours of riding. The color of some of the belts was also faded.

Impact on the product quality: Color fading has got a very negative effect on the quality of leather. Color fading makes the product look bad. If continuously there are problems of color fading in the product of Kings, then the buyers will cancel their orders and will start purchasing from some different company.

Root cause of color fading in Kings Products: In case of saddles, the top color got removed due to excessive rubbing with pressure at one area. The weight of the rider with pressure at one area removed the upper layer. Moreover, some of the belts were exposed to direct sunlight. Sunlight's inherent UV rays break leather fibers down at a molecular level that fades the original color of the leather and that was the root cause of color fading of belts. The main cause of color fading in the company's products was that the tests for assessing change in color and fastness to rubbing tests were not conducted.

Solutions based on root cause analysis: Wet and dry rubbing tests should be done before accepting the leather for stock. There should be careful inspection by the Quality Control & Production Managers so that on each and every item, these tests are conducted. Moreover, the quality managers should check that these products are not exposed to direct sunlight. Items should be sold to buyers only if relevant tests are conducted on them.

Issue-3

In the year 2013-2014, there was problem of cracks on leather products. These cracks were found on finished leather hides as well as on some leather products like belts and bags. These cracks were found in around 5% of the total leather produced. This happened in the month of November 2014.

Impact on the product quality: The cracks shorten the life of leather and even the new product looks very old. The cracks make the product look shabby. The cracks deteriorate the quality of the product. The product is not acceptable in the market. Huge money is wasted because of these cracks.

Root cause of cracks in leather at Kings International Limited: It was found during research that the root cause for these cracks was that the leather was not put under proper climatic conditions during the production process. Leather has to be given proper heating and required temperature has to be maintained during processing. Too much of heating is also harmful for the leather; therefore it is necessary to store the leather in the temperature that maintains its quality of leather. There was a specific

lot that suffered this problem. Excessive use of chemicals or tanning agents also cause cracking of leather. Moreover, it was found that salt concentration was also insufficient. This was because of the negligence of the production manager. As he was newly appointed, he didn't have much knowledge.

Solutions based on root cause analysis: Each and every lot should be carefully inspected by the manager at each stage of production process only then it should be passed to the next level. The leather should be stored under proper climatic conditions and proper heating should be given in the dehumidification room. The chemicals should be tested before using them. Moreover, the company should purchase good quality of hides. The quality control manager should strictly monitor activities of the workers and should start a program to improve the quality of products. Proper training should be given to workers so that they become aware of the quality. External services of companies like SGS should be hired for training to reduce cracks.

Issue-4

In the year 2013-2014, there was white stain in some of the leather products especially in the leather dog collar. These dog collars were supplied mainly to Europe. Buyers complained about the stain on the product. Moreover, in the tinkle halter, the leather colour was found to be too light. Some percentage of the leather got burnt during the tanning process in the month of November caused damage and was visible during the production of leather belts.

Impact on product quality: Stain has a very bad impact on the product quality. It makes the product look shabby and old, and burnt leather also makes the product look shabby. These products were rejected and sent back to the company and thus a huge cost to the company and bad name.

Root cause for these problems: White stain appeared on the dog collar because of rapt tallow melts. Since it is on the top layer of the leather, it appears as stain due to variation in climate. Tallow stain is applied on the leather to reduce the chance of cracking during hot weather conditions. The leather color in tinkle halter was found to be light because

leather was made with light drums. During the tanning process some part of the leather was burnt because the chemicals were not checked.

Solutions based on root cause analysis: Tallow quantity on the leather should be minimized and cleaning of leather should be done in hot chamber (dehumidification room) so as to avoid any stains on the leather. The leather should be processed with heavy drums to get the dark leather. Chemicals should be properly tested in the laboratory before tanning process to avoid the problem of burning of leather in the production process.

Issue-5

In the year 2013-2014, there was a problem in the quality of raw hides. Marks and scratches were clearly visible on the finished leather hides as well as on the final product. Because of those marks and scratches buyers were not accepting the goods. As a result, the company had huge loss.

Impact on the product quality: These marks and scratches have an adverse effect on the product quality. These marks make the product unacceptable. Because of these marks, goodwill of the company is adversely affected. Even the new product looks old. The product gets rejected because of these minor marks and scratches.

Root cause for marks and scratches: There are some natural marks and scratches on the skin of the animals that doesn't go easily and as a result they appear on the final product. The skin of the animals was also very loose. The company has to buy the hides to fulfill orders of the buyers. Sometimes, chemicals also fail to remove these natural marks and scratches.

Solutions based on root cause analysis: The Company should be very selective in buying the skins of animals. These hides should be carefully inspected by the quality control manager before buying them. In case there is any mark on the hide, then the manager should return that hide to the traders of hides and skins. With the help of some chemicals these scratches can be removed but the natural marks can't

be removed. So it is advisable to examine each and every raw hide before processing them into leather.

It was found during the research work that the major cause of all these problems cropped up due to the frequent change of the quality control manager. Thus, it essential that quality control manager should have proper training and services of external agencies should be taken to train the managers. Any type of negligence at the factory should be avoided with utmost care as it has a direct impact on the quality of goods.

Recommendation

Following recommendations are given to the company on the basis of findings of this research:

- The company should take precautionary measures so as to avoid problems related to fungus. The leather should be kept in dehumidification room. It should go through proper heating process. Moreover, strong anti-fungus agents should be applied during tanning process. Moisture testing of the leather should be done periodically. In this way the quality of the leather will be maintained.
- The company should also focus on meeting the shipment dates. Many buyers have complained against the company for not meeting the shipment dates. If it fails to keep up deadline of dates, then foreign buyers definitely shift to other company for purchasing goods.
- Chemicals should be tested properly before using them as they directly impact the quality of leather. The company should take services of external agencies to assure quality.
- The company should be very selective in buying hides. Hides should be examined very carefully before buying because if the hides are not of good quality then the products quality will be deteriorated and the buyers will not purchase the goods.

- Goods should be stitched properly. Moreover proper quality of thread should be used so the loop doesn't get away from the saddle.
- The company should also focus on promoting the goods internationally so as to gain more popularity in global market.
- It was seen from the investigation that some of the customers of Kings were not satisfied with the quality of leather. Kings should take all possible steps to satisfy the unhappy customers by improving the quality of its leather and thereafter leather products. This step will improve long term customers base of Kings.
- Kings should work hard on maintaining quality of leather products because there are some customers who rated quality of Kings Leather products as just average and some customers prefer leather of other companies.
- Various tests should be used to ensure that there is no problem of cracking, colour fastness, stains and fungus.
- The company should start a quality program in which strict focus should be on training the quality control and production managers.

The company should focus in those areas where it have quality problems which in turn will increase the standard of their products so that they can compete in the national and international market.

Conclusion

Like any other industry, quality is a critical factor in leather industry. While buying leather goods, buyers are more concerned about the quality and never compromise the standard of quality. Otherwise, they shift the brand with better quality. Customers of leather product never give price more importance than the quality. They are even ready to pay higher prices if the quality is up to their expectations. Moreover, improved quality of packaging, branding & bar coding is essential for customers satisfaction. Kings has got good image of its products in the

international market but it needs to focus on its quality problems that have emerged very recently.

Thus, we can say that quality is the most important factor in leather industry. Market leaders in this segment are leading because of the superior quality of their products. Therefore, in order to increase market share, companies need to focus on its quality and undertake more promotional activities of its products to highlight brand name.

References

- Bivolarevic, S. U. M., (2014), "Implementation of a Quality Management System in Luxury Companies: Focus on Leather Handbags", Ing-Ind/17 IMPIA NTI Industrial Meccanici
- Cipriani, D. (2002), D'tudy of The Quality Control and Manegement on The African Leather Sectorü0 Retrieved from: <http://www.unido.org>
- Council for Leather Exports (CLE 2013-14), Website: www.leatherindia.org
- Ghoshal, M., Madan, P., (2010), "Best Practices of Quality Management in MSME of Uttar Pradesh-Few Case Studies", Asian Journal of Management Research.
- Gupta, S., Gupta, R., Tamra, R. (2007), "Challenges Faced by Leather Industry in Kanpur", Indian Institute of Technology Kanpur, India.
- Motwani, J., Ashok K., Mohamed, A.Y. and Essam M. (1997), "Forecasting quality of Indian manufacturing organizations: An exploratory analysis", Total Quality Management, Vol. 8 No. 6.
- Muthee, A.M. (2008), MSME Competitiveness Project Ministry of Trade and Industry: Integrated Value Chain analysis of leather sector in India, Retrieved from <http://industrialobservatory.gov.rw/IMG/pdf/LeatherVChainanalysis.pdf>
- Prajogo, D.I., Sohal, A. S., (2003), "The Relationship between TQM Practices, Quality Performance, and Innovation Performance: An Empirical Examination", International Journal of Quality & Reliability Management, Vol. 20 Iss: 8.
- Tari, J.J. (2006), "An EFQM model self-assessment exercise at a Spanish university", Journal of Educational Administration, Vol. 44 No. 2.
- Tsang, J.H.Y. and Antony, J., (2001), "TQM in UK service organizations: some key findings from a survey", Managing Service Quality, 11(2), 132-141.
- United Nations Industrial Development Organization, UNIDO. (2004). Product Quality: A guide for small and medium size enterprises. Retrieved from Website: <http://unido.org>
- United Nations Industrial Development Organization, UNIDO, (2005), "Cost of Tanned Waste Treatment", 15th Session of the Leather and Leather Products Industry Panel, Leon, Mexico.
- Zhenji, D. (2006), Problems in Leather Industry Production and its Countermeasuresü0 China Leather and Foorwear Industry Research Institute, Beijing.