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Preface

The Research and Knowledge Management Office of St. Mary's University (SMU) has been organizing Annual Multi-Disciplinary Seminar (MDS) since 2009 along with other national and international events. The overall aim of MDS is to promote the culture of knowledge generation, presentation and dissemination among academicians, researchers and practitioners.

At this annual event, 17 papers were presented and discussed at the Seminar under various topics. Research papers were presented by researchers from different Universities which include St. Mary's University, Haramaya University, Bahir Dar University, Jima University, Woldia University, Debre Tabor University, Assosa University and Sheba University College.

Every year, SMU publishes papers presented in the Multi-Disciplinary Seminar (MDS) for wider dissemination and use. This proceeding is, therefore, a compilation of the 17 papers presented on August 24, 2017.

Finally, the Research and Knowledge Management Office of St. Mary's University would like to thank all participants for their contribution in terms of presenting research papers and engaging into scientific discourse.

Application of Lean Six Sigma in SMEs That Produce Ethiopian Cultural Clothing

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Different organizations all over the world adopted Lean Six Sigma as a strategy to improve their business and boost success by reducing process variation. According to different researches, the implementation of Lean Six Sigma is not limited to big organizations, but rather, it can also be applied in Small and Medium size Enterprises (SMEs). The Scope of this research was limited to SMEs that produce Ethiopian cultural clothing located at Shiromeda neighbourhood, Gulele sub city. Currently, these SMEs produce different designs of cloths on a daily basis but the products are not standardized. As a result, the researcher used Six Sigma business improving statistical strategies known as DMAIC (Define Measure, Analyze, Improve and Control). DMAIC can assist companies to identify the causes of process variation and enhance operational excellence. This Study Was Conducted With an objective to create recommendations for SMEs in how they could implement Lean Six Sigma; and how their performances influence the achievement of Ethiopia's growth and transformation plan II (GTP II). Twenty middle and small sized companies were selected for this research. The samples were selected by convenient sampling technique because of their availability during the research and their willingness to participate in this study. An interview was conducted with twenty managers from each company; and a questionnaire was administered to the rest of the employees. The results of the study show that these SMEs were still working by traditional techniques. This results in high level of product variation, inability to deliver product in time, and customer dissatisfaction. It was also found that SMEs were excited about letting go of traditional ways and start adopting modern philosophies like Lean Six Sigma for a better performance and customer satisfaction. But they feared that it would cost them a fortune to implement it. Therefore, the advantage of applying Lean Six Sigma with respect to implementation cost should be explained clearly to SMEs.

Keywords: Six Sigma, SMEs, cultural clothing, GTP II

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1. St.Mary's University

1. Introduction

1.1 Background and Justification

Having more than 80 nations and nationalities, Ethiopia has a number of cultural clothing enterprises. There many Small and Medium Enterprises (SMEs) that produce and deliver cultural clothes to customers. Substitute and supporting industries highly affect the competitiveness of these industries. The competitiveness of Ethiopian cultural cloth making industries are also influenced by lack of designed product distribution mechanisms, shortage of supply of appropriate raw materials with fair price and lack of modernized production and machine technology. The key areas whereby problems were identified were low quality, poor knowledge of products by consumers and low demand. Role of government is to follow the demand conditions that affect the competitiveness of the industry. There are good polices that support the industry but the implementation of the policies is not effective (Selamawit, 2016). Whereas so far the international textile and apparel market supply exceeds the demand so that textile and apparel industry become buyer market and the international price for textile and apparel shows a downward tendency (Yared, 2010).

Out of the many different special characters of the Ethiopian people, this study focused on the cultural clothing (Tibeb) quality attributes. Tibeb, one of the traditional clothing, is cherished and worn by most Ethiopians. It is a special garment favored by people all over the country. Its grace is known by the Ethiopian people and appreciated by the world. There are many small and medium enterprises that produce cultural clothes mostly around Shiromeda (Bethlehem, 2016).

The Ethiopian government has planned to assign urban areas with compatible land use to act as bases for the emerging national businesses and micro, small and medium sized enterprises. Now, the government has also planned to increase the manpower employed in medium and manufacturing sector to increase from 380,000 to 757,600 in 2019/20 (GTP II). This indicates that the sector is expected to contribute to the GTP growth at the rate of 21.8% for large and medium enterprises and 22.3% growth rate for small and micro manufacturing industries in the year 2019/20. These large and medium scale enterprises and micro and small sectors will be expected to share major

economic sector in 2019/20 by an average percentage of 4.9 and 1.4 respectively.

According to the data in the year 2014/15, small and medium scale industries are expected to show distribution of demand and supply of foreign exchange of $145.2 million in 2019/20 (GTP II).

The small and medium enterprises located at Gulele sub city, Shiromeda lack sufficient skills to achieve these goals (Bethlehem, 2016). Therefore, the application of modern engineering philosophies will highly contribute to the economic development and transformation plan. If Lean Six Sigma a highly disciplined process highly focusing on delivering a near perfect product and services consistently is applied to cultural cloth making enterprises, a great performance improvement is expected.

1.2 Problem Statement

SMEs that produce cultural clothing are operating using traditional strategies and techniques. And this action hasn't helped them to mitigate the changing needs of customers in today's competitive business world. The need of each customer is different from one another. And this study shows that there are variances in cultural clothes produced by SMEs. They find it very difficult to meet every customer's need. This trouble gets worse in the peak seasons, such as wedding and holiday seasons. The number of customers during peak seasons increases and there will be more demand of cultural clothes. As a result, SMEs that produce cultural clothes face difficulty in producing and delivering the quantity that will be requested during these peak seasons.

1.3 Objective of the Study

The main objective of this study was to identify the reasons for production and variability of Ethiopian cultural clothing.

The specific objectives were:

- To identify the main factors that satisfy customer needs
- To recognize the factors that play a major role for product variability

1.4 Scope and Limitation of the Study

This study focused on realizing the existing problems that affect the performance of traditional clothing companies. The study area is located at 'Shiromeda'. It was selected due to the fact it is the main destination for

manufacturing and marketing most of the cultural cloths in Addis Ababa. Among the manufactures, small and medium enterprises were selected due to their willingness and convenience to participate in this study.

2. Methodology

This study was conducted by interviewing twenty managers of cultural cloth making companies located around Shiromeda.

The sampling technique for this study was convenient sampling. As its name implies, convenience sampling refers to the collection of information from members of the population who are conveniently available to provide information.

Convenience sampling is a kind of non-probability or non-random sampling whereby members of the target population, as Dörnyei (2007) mentions, are selected for the purpose of the study if they meet certain practical criteria, such as geographical proximity, availability at a certain time, ease of access, or their willingness to provide information. Dörnyei further explains that, "captive audiences such as students in the researchers" own institutions are prime examples of convenience sampling." Mackey and Gass (2005) point out that the obvious disadvantage of convenience sampling is that it is likely to be biased. They advise researchers that the convenience sampling should not be taken to be representative of the population.

Convenience sampling (also known as Haphazard Sampling or Accidental Sampling) is a type of non-probability sampling where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study (Dörnyei, 2007). It is also referred to the researching subjects of the population that are easily accessible to the researcher (Uma, 2002).

Convenience samples are sometimes regarded as 'accidental samples' because elements may be selected in the sample simply as they just happen to be situated, spatially or administratively, near to where the researcher is conducting the data collection.

With numbers derived from convenience sampling, one can make only weak statement about some characteristic of the sample itself rather than a formal inductive inference concerning the population of interest (Dörnyei, 2007).

2.1 Primary Data

In every type of research, it would be excellent to use the whole population, but in most cases, it is not possible to include every subject because the population is almost finite. This is the rationale behind using convenience sampling by most researchers.

The study used a semi-structured interview to gather data and information from the SMEs that were willing to participate in this study. This approach assisted the researcher to gather additional information related to the cause of variation in making and delivering of cultural clothing. The interview was conducted with the chair person/manager of each of the selected enterprises.

Visual analysis was also used to observe defective products. All defective products were not able to be seen by eye unless the customers specified what made them dissatisfied.

2.2 Secondary Data

The basis of this proposal was initiated from different literatures and journals. Therefore, the application of secondary source of information was used during this study. Secondary sources of data included published journals, books and documents.

2.3 Data Analysis

The collected data were analysed by DMAIC: a five phase Six Sigma Methodology. If there is an existing process that does not meet customer specifications, then Six Sigma five phase methodology (DMAIC) will used (Define, Measure, Analyse, Improve, Control). This process can be improved and made more effective, efficient, or both (Pawan, 2011). DMAIC can also be enlightened as:

a) Define

This is the first step used to define the problem and what the customers require. This phase sets the expectation of the improvement of project and maintenance of focus of Six Sigma Strategy on customer's requirement. There are a number of tools used in Six Sigma methodology to define the problem and these tools include: QFD (Quality Function Deployment), FMEA (Failure model effect analysis), Process mapping, Logic Tree, Pareto

Analysis etc. For this study, the existing problems were defined using FMEA.

b) Measure

This is the second phase that identifies the defects in the product, collects reliable baseline information about the process and establishes improvement goals. The defects of the cultural cloths were identified in the first phase, followed by asking follow up questions to get a realistic view of the defects.

c) Analysis

The analysis phase analysed the data collected in order to come up with a prioritized list of source of variation. It is the main component of any defect reducing program. This is the stage at which new goals are set and route maps created for closing the gap between current and target performance level.

Statistical tools as well as conventional quality techniques like Brainstorming, Root-cause analysis, Normality analysis, Process capability, Fish bone Diagram, Pareto Analysis etc have been used for carrying out the analysis. By using FMEA method, the reasons for variation were prioritized.

d) Improvement

The optimal solution for reducing variation or mean was determined and confirmed in this phase. The purposes of this phase were to confirm the key process variables, to quantify their effects on the critical to quality (CTQ) and use of 'Brainstorming and Action' workouts. This phase helps to identify and quantity the key process variables and their influence on CTQs and determine acceptable limits to reduce the number of defects in the process. This step may involve the use of a variety of statistical methods and tools to determine high priority attrition variables and need to develop and/or redesign functions that impart product performance and success. And for this study a CTQ tree is developed.

e) Control

Six Sigma being the highly disciplined process, it highly relies on delivering a near perfect product and services consistently. And the final phase of Six Sigma implementation is to hold the gains that have been achieved from the improve stage. Therefore, in this stage the new process considerations are documented and frozen into systems so that the gains remain permanent.

This phase emphasizes in determining process capability and implementing various process controls to ascertain the modified process stay within acceptable limits.

Discussion

The collected data was analysed by DMAIC method; and the first step of this technique was defining the existing problem. Therefore, the problems were defined and analysed further by Failure Mode and Effects Analysis (FMEA) method. FMEA is a design tool for assessing risk associated with the different ways in which a part or a system can fail, identifies the effects of those failures, and provides a structure for revising the design to mitigate risk where necessary. It can be a simple failure as a product doesn't appeal to customers; or it does not give enough liability that the customer likes the product.

The failure in this case is customized as not being able to meet customer's requirement. Customers' needs were described in detail with every mode of failure stated in this study.

It is an informative process, asking the question of "If failure occurs, then what could happen?" It is a technique that provides a method for quantitative analysis of risk. It will let to look at different failure modes and their different effects and which failure modes and effects are most important to pay attention to will come out to the calculation. It is also useful in comparing one design concept from the other and refining it. So the risk can be assessed in this type of design concepts giving you an option to weigh one option from the other and further refine your designs and find good designs and the good aspects of designs that makes risk low. It also gives a really good way to document safety review in an easy to read format.

Steps for FMEA

1st: The first step of FMEA is to identify modes of failure

2nd: Identifying consequences and related systems for each mode

3rd: Rate the severity of each effect

4th: Identify potential root causes for each failure mode

5th: Rate the probability of occurrence (O) of each root cause

6th: Identify process controls and indicators

7th: Rate detectability (D) of each mode/root cause

8th: Calculate risk priority (S*O*D) and Criticality (S*O)

9th: Use design to mitigate high–risk or highly critical failures and re-assess to ensure goals have been achieved.

Possible failure modes are:

➢ The traditional cloth doesn't fit the customer
➢ The traditional cloth is not delivered to the customer in time
➢ The features of the traditional cloth are not fully met to the specifications of the customers requirement
➢ The color combination of the traditional cloth is not as per the customer's request
➢ The finishing of the cultural clothing is not attractive to the customers
➢ The material used to make the cultural cloth does not fit the customer's expectation
➢ The accessories (zip, key) don't go with the cultural cloth or they don't work
➢ Consequences and Related Systems for Each Mode
➢ The traditional cloth doesn't fit the customer
➢ Rework: to make the cultural cloth fit the customer
➢ The employees will be assigned to operate on this cultural cloth in order to remake the cloth. This will result in investing more resources than necessary if the cultural cloth was made to fit the customer in the first place (8). It is rated 8, because after this experience this company might learn not to make the same mistake again.
➢ The traditional cloth is not delivered to the customer in time
➢ The customer has ordered the cultural cloth for an event, and if it is not completed on time then it will not add value to that customer. As a result the customer will be dissatisfied and leave to look for other options (10). We give this a 10, because this customer will not come back.
➢ The features of the traditional cloth are not fully met to the specifications of the customers requirement
➢ The features the customer requested to be included or removed might not have been met. And when he/she comes to collect the cultural cloth, they will be disappointed. The company will usually apologize and will request more time for rework (8).

➢ The color combination of the traditional cloth is not as per the customer's request

➢ These days, customers request for a specific design of cultural cloths after they see it on a famous person. They also want the color combinations to be like the ones they saw on a television. But when the small and medium cultural cloth making enterprises fail to meet this demand, the customers will be dissatisfied.

➢ The customer will be hesitant to take the cultural cloth home (usually, the SMEs don't recommend options to correct this failure for their customers)

➢ The customer might not come again (9). It is given a 9, because there is always a slight probability that the customer will come to us for his/her next order.

➢ The finishing of the cultural clothing is not attractive to the customers

➢ After the production of the cultural cloth, the threads might be seen at the edge of the cloth. This makes the cloth unattractive and the customer feels dissatisfied about the product.

➢ The poor finishing will hide the beauty of the cultural cloth and makes the customers feel insecure about it (9). This is given a 9, because even though all the requirements are met by the producer, they should have put in more effort to make the customer feel confident about the cultural cloth.

➢ The material used to make the cultural cloth does not fit the customer's expectation

➢ The customers will choose the material they want their cultural cloth to be produced from. But when it is done, the basic material or the lining can be too bright or too dark for their taste (9). This is given a 9, because the producer knows how to make the exact product seen on a TV or a picture. And they should have explained it to the customers if a difference was going to occur before they accept the order. In general, this leads to producing a product that doesn't meet the requirements.

➢ The accessories (zip, keys) don't go with the cultural cloth or they don't work

➢ In addition, the thread producers also use different accessories to produce cultural cloth, after the cultural cloth is made, the zip and the button might not work properly. (7). since these accessories can be replaced it is

given a number 7. As a result, the accessories will lose their functionality.

Possible Root Causes

➤ The traditional cloth doesn't fit the customer

➤ Lack of sufficient experience and skill to make the cultural cloth according to the requested size (3).

➤ Not having a standard for different sized cultural cloths, even though they measure the customer when the order was received (6).

➤ Lack of commitment to operate according to the required size (2).

➤ The customer might lose or gain weight during the time the cloth was being made (1).

➤ The traditional cloth is not delivered to the customer in time

➤ Not planning the tasks according to their priorities. The producers can use First Come First Served (FCFS) method to produce the orders according to the sequence of order (7). This is given 7, because this problem can easily be solved if the producers have a time table they can follow for every activity.

➤ Receiving order beyond capacity (6)

➤ Small number of manpower to operate the different tasks (6)

➤ Not finding the right material in time (5)

➤ The features of the traditional cloth are not fully met to the specifications of the customers requirement

➤ There are different features that make the Ethiopian cultural cloth unique. The features include tilf and tilet. Different customers want different features to be included in the cultural cloth they ordered. The one reason can be lack of attention to customer needs (8).

➤ Lack of skill and experience to include the requested features (7). This is given a 7, because if the current operators find the opportunity for training they can do a better job in the future.

➤ Outsourcing some tasks might lead to accepted defected parts. This is usually the excuse given to customers who are not satisfied with the details of the cultural cloth's additional features. Therefore, as long as the task is given to someone outside the party who received the order, the enterprises should evaluate the party before they assign them to do the activity (6).
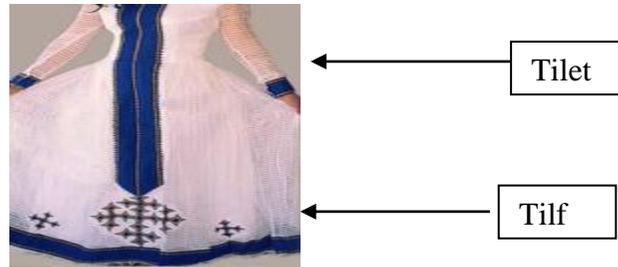
➤ Uncomfortable work environment (7)

Figure 1: Parts of Ethiopian Cultural Cloth

➢ The color combination of the traditional cloth is not as per the customer's request
➢ When a cultural cloth is made more colors might be used to make it more appealing for the customers. But sometimes the productions might not find the exact color for a specific cultural cloth. And this will result in customer dissatisfaction (7). The exact colors might not be available from the supplier.
➢ Operating with the existing materials without notifying the customer in the first place (6)
➢ Failure to remember what the customer requested or ordered (7)
➢ The finishing of the cultural clothing might not attractive to the customers' need
➢ After the cloth is made, the cloth will not look attractive because of the finishing. The cause for this failure can be lack of skill of the producer (7).
➢ Operating in a hurry to meet the deadline (8).
➢ Operators mistake and unable to correct it (6)
➢ The material used to make the cultural cloth does not fit the customer's expectation
➢ The requested material might be unavailable (9).
➢ Failure in understanding what the customer asked for (5).
➢ The accessories (zip, key) don't go with the cultural cloth or they don't work
➢ The availability of accessories in t the market might be limited (7).
➢ Preferring low cost accessories (2)
   Indicators
➢ The traditional cloth doesn't fit the customer
➢ The customer notices a part of the cloth is very loose or tight and it doesn't fit.

> ➢ The traditional cloth is not delivered to the customer in time
> ➢ When the customers came to collect the cultural cloth, the producer will inform him/her it is not ready yet.
> ➢ The features of the traditional cloth are not fully met to the specifications of the customers requirement
> ➢ The customer might have requested for the features to be of some size or design. But after it is made, the producer might fail to meet these requirements.
> ➢ The color combination of the traditional cloth is not as per the customer's request
> ➢ The overall view doesn't seem appealing to the customer.

➢ The customer had a certain picture in mind on what the color combinations will look like. And after seeing the final product, the customer will realize that it doesn't rhyme with what they had in mind.

➢ The finished cultural clothing is not attractive to the customers

➢ The stitches might be irregular

➢ Some threads might be seen at the bottom of the cultural cloth

➢ The edge of the lining might not be stitched properly

➢ The material used to make the cultural cloth does not fit the customer's expectation

➢ When customers see the final product, their excitement might hit rock bottom. This is because; the type of material used to produce the cultural cloth will change how the cloth looks.

➢ The accessories (zip, key) don't go with the cultural cloth or they don't work

➢ When customers want to zip up their cultural cloth while trying it, it might not work. Or it might get stuck

➢ In addition, the keys might not work as well.

Detectability:

➢ The traditional cloth doesn't fit the customer (6)

➢ The customer notices part of the cultural cloth is loose or tight

➢ The customers might not notice the perfect fit immediately

➢ The traditional cloth is not delivered to the customer in time (10)

➢ The producer might find it difficult to produce the cloth

➢ The features of the traditional cloth are not fully met to the specifications of the customers requirement

➢ Some features of the cultural cloth might be executed wrong (5)

➢ The dimension of 'tilf' and 'tilet' might be small or large
➢ The length of the features might not fit to what the customer requested
➢ The design of the features might not meet the specification promised by the producer
➢ The color combination of the traditional cloth is not as per the customer's request (3) For instance, if the customer requested the 'tilf' to be done with a combination of red, white and black colors then a different shade of a certain color will affect the combination. This can easily be identified after the 'tilf' is completed and the three colors are seen together.
➢ The finishing of the cultural clothing might not be so attractive to the customers (6)
➢ Threads might be seen on the outer part of the cultural cloth
➢ The stitched part of the cultural cloth is a mess
➢ The lining is not attached to the main part of the cultural cloth properly. It might be too large or too small.
➢ The material used to make the cultural cloth does not fit the customer's expectation
➢ The type of material used to produce the cultural cloth has a tremendous effect on the quality of the final product. As a result, when the product is finally seen by the customers, they might easily notice that the material of the cloth is not what they order of (3).
➢ The accessories (zip, key) don't go with the cultural cloth or they don't work
➢ This can be detected when the customers try to use these accessories (4).

Table 0.1 Failure Mode: The Traditional Cloth Doesn't Fit

Possible Effect	Root Cause	S	O	D	Risk Probability Number	Criticality
Rework	Lack of sufficient experience	8	3	6	144	24
	Not having a standard		<u>6</u>		288	48
	Lack of commitment		2		96	16
	The customer might lose or gain weight during the time the cloth is being made		1		48	8

Therefore, the producers can specify a standard in order to eliminate this problem. From other fashion industries' experience creating a pattern for different sizes and using it cut and stitch each part is advisable. The operators should also be trained on how to make a well fit cultural cloth for the customers.

Table 0.2: The Traditional Cloth Is Not Delivered to the Customer in Time

Possible Effect	Root Cause	S	O	D	Risk Probability Number	Criticality
Dissatisfied customer will not come back	Not planning	10	7	10	700	70
	Receiving order beyond capacity		6		600	60
	Small number of manpower		6		600	60
	Not finding the right material in time		5		500	50

In order to deliver the product in time, planning ahead and operating according to the plan will be a suitable solution. In addition, producers should check how many orders they have and their progress before they receive a new order and set a date on which the customer can come and collect the cultural cloth.

Table 0.3: The Features of the Traditional Cloth Are Not Fully Met to the Specifications of the Customer's Requirement

Possible Effect	Root Cause	S	O	D	Risk Probability Number	Criticality
Rework	Lack of attention to customer needs	8	8	5	320	64
	Lack of skill and experience		7		280	56
	Outsourcing tasks		6		240	48
	Uncomfortable work environment		7		280	56

The first thing that leads to not including a feature requested by the customer is lack of attention to customer's needs. Followed by lack of experience and skill to give the customer what they want while working in an ergonomically uncomfortable environment.

Table 0.4: The Color Combination of the Traditional Cloth Is Not as per the Customer's Request

Possible Effect	Root Cause	S	O	D	Risk Probability Number	Criticality
A product that doesn't meet customer request	Unavailable material (necessary thread types)	9	7	3	189	63
	Operating with other material without notifying the customers		6		162	54
	Forgetting what the customer requested		7		189	63

The table 4.4 shows that the material can be unavailable, but they should also take notes of the customers' needs and use it to produce the cultural clothes.

Table 0.5: The Finishing of the Cultural Clothing Is Not Attractive to the Customers

Possible Effect	Root Cause	S	O	D	Risk Probability Number	Criticality
Rework and dissatisfied customer	Lack of sufficient skill	9	7	6	378	63
	Operating in a hurry to meet deadlines		8		432	78
	Making a mistake and not willing to correct it		6		324	54

One of the factors that influence the beauty of a product is its finishing. As a result, making the cultural cloth by assigning appropriate time can be considered a solution in order to bring life the cultural cloth. And when a mistake occurs, it is better to fix it instead of waiting for the customer to see it and complain about it.

Table 0.6: The Material Used to Make the Cultural Cloth Does Not Fit the Customer's Expectation

Possible Effect	Root Cause	S	O	D	Risk Probability Number	Criticality
Product that don't fit the request	Unavailability of material	9	9	3	243	81
	Not understanding and remembering what the customer requested		5		135	45

In order to satisfy our customers' requirement, we should use the right materials. And be sure about this priority should be given to the available which are materials in the market.

Table 0.7: The Accessories (Zip, Key) Don't Go With the Cultural Cloth or They Don't Work

Possible Effect	Root Cause	S	O	D	Risk Probability Number	Critic ality
Not being able to use the cultural cloth	Unavailability of appropriate accessories	7	7	4	196	49
	Using inappropriate accessories in order to cut down cost		2		56	14

When the accessories attached to the cultural clothes don't work, they would not add value to the customer's need. Therefore, it is recommended for the producers to use appropriate accessories that can function effectively.

Critical to Quality

Defining quality and knowing what the customers wants can be a big challenge. CTQ is a diagram based tool used to develop and deliver a high quality products and services. It helps manufactures or producers to understand what drives quality in the eyes of customers by listing out the factors that customers care about the most. When manufacturers know what customers want, they will be able to deliver a product and service that they are satisfied with (Victor, 2008).
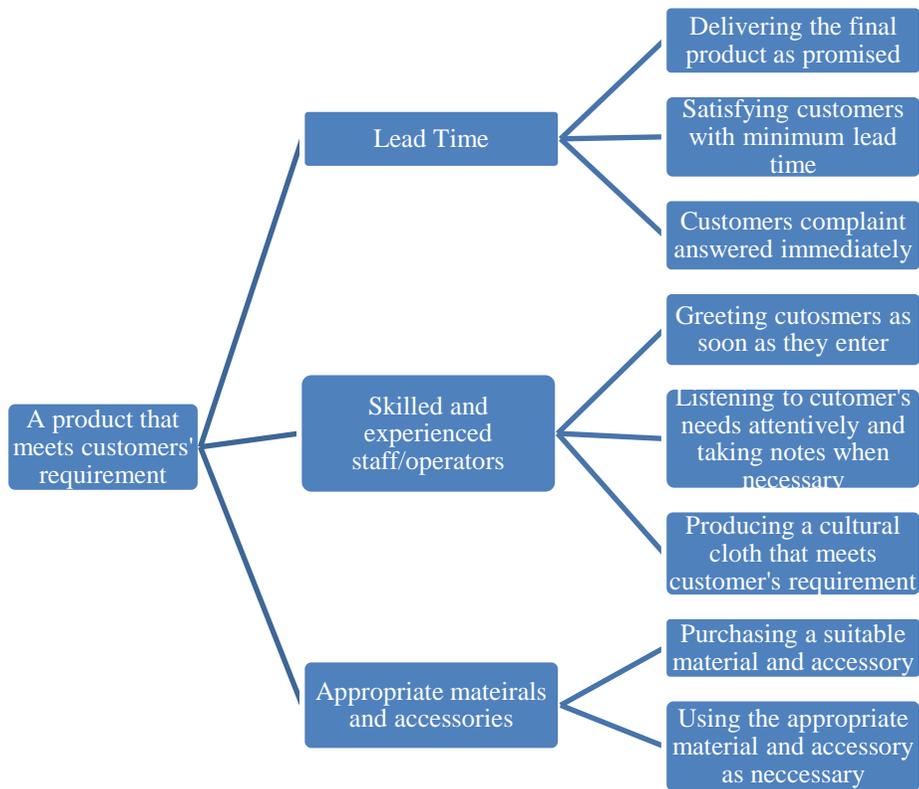
Figure 2 CTQ Tree for SMEs That Produce Cultural Cloth

Since Critical to Quality trees were originally developed as part of Six Sigma, the SMEs can use the above CTQ tree and use it deliver high quality products and services. From the above CTQ, it was found that the critical need of customers is giving them what they want. For this case, it is delivering a cultural cloth that fits their body and makes them look good and feel confident. The quality drivers for to deliver this need are stated as short lead time, using trained operators, and using appropriate material and accessory to increase the aesthetic value of the product.

Conclusion

In order to survive and succeed in today's competitive world, operational excellence is a basis for success of SMEs. Different modern philosophies can be applied in order to come up with a break through strategy that can ensure effective business strategy in large companies around the world. Six Sigma has proven that it can solve different quality related problems in a company

to prove the applicability of this process in small industries as well. Six Sigma is an exciting revolution that can strengthen the bottom lines while playing a major role in increasing the economy. The first step in Six Sigma is to believe that it can establish a framework for its implementation and continues to gain advantages from it.

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