Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

# Six Sigma in Electronics Company: A Case Study on Samsung

**Gedela Rakesh Varma**
**Research Scholar,**
**Department of Commerce and Management Studies,**
**Andhra University, Visakhapatnam-530003.**

**Prof.Jaladi Ravi**
**Professor,**
**Department of Commerce and Management Studies,**
**Andhra University, Visakhapatnam-530003.**

**Abstract:**
Six Sigma is a method that provides organizations equipment to improve the capability of their business procedures. This increase in performance and decrease in process variation lead to defect reduction and enhancement in profits, employee morale, and high quality of product or service. Six Sigma quality is a term normally used to indicate a process is well in control. Electronics have become an important part of human life. Electronics is used every work done by the human being. cooking food, health, in driving, in watching and many other things you will see the existence of electronics around. in this paper we will discuss about the six sigma application in samsung.

**Key words:** six sigma, employee morale, high quality.

**Preface:**
Six Sigma is a method that provides organizations equipment to improve the capability of their business procedures. This increase in performance and decrease in process variation lead to defect reduction and enhancement in profits, employee morale, and high quality of product or service. Six Sigma quality is a term normally used to indicate a process is well in control. Electronics have become an important part of human life. Electronics is used in every work done by the human being.In cooking food, in monitoring health, in driving, in watching and many other things you will see the existence of electronics around applications of Electronics • In Home: The lights devices in houses uses the electronics in it. The LED home lighting devices are utilized a lot because it is much better than the fluorescent lights and are also effective in both power and cost.

The LED was developed making use of electronics and its various methods. An application of Electronics is used in every work done by the mankind. Cooking food, health, driving, watching and many other things you will see the existence of electronics around. Man is now able to monitor his health by a small belt kept on his wrist or by just through the smart phones. They display the full health report that includes details regarding calories & fats. **Six Sigma** approach is a collection of managerial and statistical concept and techniques that focuses on reducing variation in processes and preventing deficiencies in product. The concept of Variation states "NO two items will be perfectly identical."In a process that has achieved six sigma capability, the variation is small compared to the range of specification limit.. Six Sigma is a very clever way of branding and packaging many aspects of Total Quality Management (TQM).( TQM is a management approach to long–term success through customer satisfaction.)

**Review of Literature:**
**Category1:** Six Sigma General Aspects And Fundamentals This category includes publications on Six Sigma evolution, concepts, methodology and performance matrices & employee perceptions .There are 45 publications on this category from time span of 1991 to 2005. The numbers of papers are highest in this category corresponding to time span of 1991 to 2005 as papers belonging to this category represent basic concepts of Six Sigma. Due to quantum growth of Six Sigma deployment in various other sectors, there is no sharp rise in numbers of papers belonging to this category in previous five years.

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

Few of the papers pertaining to above-mentioned category are; Majoomdar [2002] has worked on the problem of process variation in the industries. He has suggested that variation are single largest enemy of the industries and suggested the tools to deal with short term and long term variation. He has further suggested that statistics is a key ingredient in successful implementation of Six Sigma program. Man [2002] has linked Six Sigma with adult learner characteristics. He has presented a model that enable adult learner to engage in lifelong learning within their organization. He has further stressed that model enables learning throughout in their personal lives also. Antony [2004] has examined pros and cons of Six Sigma in a detailed manner. In addition, applications of statistical & non-statistical tools and techniques to tackle process variability have been described. He has stressed that applications of Six Sigma will grow in forthcoming years due to presence of statistical science within Six Sigma.

Kwak and Anbari [2004] have stressed upon the key factors like management commitment & involvement, training, cultural changes, linking Six Sigma to business. Authors have also described obstacles, challenges, and future of Six Sigma methodologies. Authors have suggested that primary focus should be on improving management performance rather than just pinpointing and counting defects. Authors have further concluded that effective implementation of Six Sigma principles are more likely to succeed by refining the organizational culture continuously. Senapati [2004] has suggested Six Sigma DMAIC approach through deming cycle, TQM, MBNQA, and Dorian shanin"s statistical engineering. He has suggested Six Sigma as improvement initiative, which does more than any other existing plan. Kumar, M. et al. [2008] has found that Six Sigma is neither a fad nor just another quality initiative. It has base of factual data coupled with hard work & is a disciplined, focused, scientific, and structured problem solving methodology.

He has suggested that Six Sigma should not be viewed as advertising banner for promotional purposes. The organizations implementing Six Sigma have benefits from it in three major ways like reduced defect rate, reduced operational cost, and an enhanced customer satisfaction. Six Sigma should be adopted as a way of life. Authors have suggested that right training and implementation will help people to understand that Six Sigma methodology is significantly different from other quality initiatives. It contains many concepts & philosophies that have been taught for years but then again it is different because it teaches practical method of achieving results. Schroder et al. [2008] have provided definition & underlying theory of Six Sigma and discussed structural control and structural exploration of the same.

**Category2:** Six Sigma Tools, Techniques And Framework This category includes publications on Six Sigma tools, techniques and frame works. There are five publications from 1991-2005 belonging to this category. Few of the papers pertaining to above mentioned category are; Henderson and Evans [2000] have reviewed the basic concepts of six sigma, its benefits, & successful approaches for implementation & benchmarked the practices of General electric company. Authors have dones tudy of Six Sigma DMAIC methodology in GE and found key factors for successful implementation of Six Sigma include upper management support & involvement, training, infrastructure, tools and linking HR based action like promotions, bonuses etc. Rowlands and Antony [2003] has presented the application of design of experiment (DOE) in order to find out the key process parameters which affect the tensile strength of welded joints. Statistical analysis was carried out to identify process parameters that influence mean strength and variability in welded joint strength. The result of analysis may be applied to a manufacturing company to extend the application of DOE to other core processes.

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

Lazreg and Gien[2009] have linked Six Sigma and maintenance excellence with quality function deployment. The authors suggested that linking maintenance excellence & Six Sigma leads to an improved model of organization maintenance function, eliminate the occurrence errors, and reduces the cycle time of maintenance. Authors have claimed that these two approaches can be coupled using quality function deployment. Yeung [2009] has explored the use of supplier, input, process, output, and customer (SIPOC) in Six Sigma to monitor product and services provision for customer satisfaction . A case of integrating SIPOC of Six Sigma into social, responsible, & ethical retail shoe shop has been demonstrated in this paper. The author has suggested carrying out further research on use of quality concept in analyzing relationship between consumer behavior & business performance.

**Category3:** Six Sigma Applications In Manufacturing Organizations These publications illustrate the application and implementation of Six Sigma in manufacturing industries. Case studies of actual implementation of Six Sigma in manufacturing organizations are also presented in these papers. In addition, research papers from this category include general papers of Six Sigma in manufacturing, application of Six Sigma in jobbing industries, small and medium scale industries, application of Six Sigmain construction, chemical and process industries. There are 16 publications from 1991-2005 belonging to this category. There is considerable increase in publication belonging to this category. Few of the papers pertaining to above-mentioned category are; Antony et al. [2005] has presented the application of Six Sigma Define-Measure-Analyze-Improve-Control (DMAIC) methodology to reduce engine-overheating problem in an automotive industry. The experimental data collected during DMAIC project will provide a greater scope for the wider application of Six Sigma methodology across the automobile companies in future.

Doble [2005] have compared Six Sigma methodology and chemical plant safety methodology for the chemical process safety.Kumar and Sosnoski [2009] has examined one of the shop floor chronic quality issue during heat treatment process through Six Sigma DMAIC methodology. Radha Krishna and Dangayach [2007] has presented the implementation of Process level Six Sigma in auto component manufacturing plant. Gerhorst et al. [2006] have worked on Design-For-Six-Sigma (DFSS) in product development at ford motor company through computational fluid dynamics and experimented design technique. Sahoo et al. [2008] has implemented DMAIC in order to optimize radial forging operation. The authors had the prime focus on minimizing the residual stresses developed in the components manufactured by radial forging. Antony and Desai [2009] have accessed the status of Six Sigma implementation in Indian industries. The authors have presented the results for exploratory empirical study. The questionnaire survey was applied in UK industries and adapted so that it could be applied in Indian industries. Awad et al. [2009] has worked on DFSS approach to improve the expectancy of track roller & idlers for an off road machine through CAE model. Aggogeri, Fet al. [2009] have worked on implementation of DFSS project in SME to improve performance of extrusion process.

**Category4:** Six Sigma Applications In Service Organizations These publications present overview of Six Sigma DMAIC methodology in service organizations. In addition, case studies related to Six Sigma applications in services including financial organizations, education and health care have been discussed. The research papers in this category include general papers on six sigma, Six Sigma in education, Six Sigma in health care services, Six Sigma in e-business & financial services. During the time interval of 1991-2005 number of publications corresponding to this category are 17.

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

In this category, there is substantial increase in number of publications, because now a days service organizations like financial services, health care, e commerce, and logistics are playing a very vital role for economy of developed countries. Few of the papers pertaining to above-mentioned category are; Hensley and Dobie [2005] has presented Six Sigma model in an urban public transit company. The model includes analysis of the transit company‟s readiness for Six Sigma. The survey analysis was used to identify the differences in perceptions between service employees and customers. He has suggested that Six Sigma programs work best in the organizations that are prepare to apply them. One of the limitations of study was that it was implemented in single organization. Antony [2006] has studied basic features of Six Sigma methodology for implementation in service organizations. He has investigated tools and techniques used within Six Sigma methodology for service processes performance.

Key factors for successful implementation of Six Sigma in service organizations include strong leadership and management commitment, organizational culture change, selection of Six Sigma team members and teamwork, Six Sigma training, linking Six Sigma to customers etc. Antony et al. [2007] have studied the UK service organizations and found out that average level of companies in UK was around 2.8 sigma. Authors have suggested key factors for successful deployment of Six Sigma in service organization include management commitment and involvement, customer focus, linking Six Sigma to business strategy, organizational structure, & project management. Macarty and Fisher [2007] have described as how to get started and to overcome the resistance for service organizations. Authors have suggested that with guided implementation & disciplined used Six Sigma yields tangible results in service environments. Jenicke et al. [2008] has identified several aspects that differentiate an academic environment from manufacturing setting for Six Sigma application. He has proposed a three -tier framework for academic institutions where Six Sigma may be used as used by administrators, faculty, staff, and students as an implementation guide. He has suggested that role of management is very critical if Six Sigma is to be implemented successfully. He has further encouraged college and departmental heads to participate in Six Sigma training that will in turn encourage faculty and staff to participate in Six Sigma initiative. Behnam nakhai et al [2009] have found that extreme drive for adopting Six Sigma in service organizations has led both to limited field of application & unrealistic expectation as to what Six Sigm ais truly capable of achieving particularly in service organizations. Authors have presented the service quality model and described the gap between Six Sigma and service quality. Kay chan tan et al [2009] has done qualitative & quantitative analysis of Six Sigma organizations in Singapore and found out that application of Six Sigma in service sector is concentrated in a few services. He has provided parameters to be considered for successful implementation of Six Sigma. He has done a questionnaire survey of Singapore service organizations to understand the status of Six Sigma in Singapore The survey shows that 23% of responses are not aware of Six Sigma methodology, 23% find it is not relevant. 15.38%, 17.95%, & 17.95% percentage of responses find that it is not relevant, not interesting, time consuming and difficulties in identifying process parameters.

**Category5:** Six Sigma Project Selection & Implementation Strategies The research papers pertaining to this category include papers on Six Sigma project selection, Critical Success Factors (CSFs) affecting its implementation and Six Sigma implementation strategies. There has been eight papers belonging to this category corresponding to time interval of 1991-2005.the number of papers corresponding to 2006 were two & numbers of papers corresponding to 2010 were eight.

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

The trend shows that there has been sharp increase in publication belonging to this category. It is due to the large growth of Six Sigma implementation in service as well as manufacturing organizations. Few of the papers belonging to this category are; Antony and Banuelas [2002] have reviewed critical success factors for deployment of Six Sigma in organizations. Banuelas et al [2006] have used survey as method to investigate that what measures are to be considered to select Six Sigma project and how potential projects are identified. He has concluded that Six Sigma converts quality improvements in to bottom line financial benefits and selection of appropriate project is a key factor to success. Chakravorty [2009] has commented that Six Sigma program fails because an implementation model to effectively guide the program is lacking. He has recommended six steps implementation model for effectively implementing Six Sigma projects. Kumar, M. et al [2009] have focused on the importance of project selection and its role in successful deployment of Six Sigma within the organizations.

Authors have presented the methodology linking the project selection process to successful deployment of Six Sigma within the organization. Büyüközkan and Öztürkcan [2010] has presented a combination of ANP (Analytical Process Network) & DEMATELC (decision-making trail & evaluation laboratory) techniques to help companies to determine the critical Six Sigma projects & identify the priority of these projects especially in Logistics Company. Desai and Patel [2010] have commented that Six Sigma is not being explored in Indian Industries to its full potential. Authors have presented two real life cases highlighting Six Sigma implementation difficulties in Indian industries.

**Category6:** Six Sigma And Its Linkages With Other Initiatives Under this category literature on Six Sigma and its linkages with other initiative such as systems thinking, lean, ISO 9001: 2008, supply chain management, and Design for Six Sigma are considered. Few of the papers pertaining to above - mentioned category are; Antony [2002] has stressed that during journey of excellence of any firm, they often need to redesign the products and processes in order to reduce defects and improve quality. Author has explained the underlying statistical concepts and methodology of design for Six Sigma (DFSS) for a firm moving toward the realization of Six Sigma quality. Banuelas and Antony [2003] have examined the similarities & differences in Six Sigma methodology and compared it with DFSS approach. Banuelas and Antony [2004] have stressed importance of DFSS to design and redesign processes to ensure achievement of high levels of quality. Authors have tested suitability of a multi criteria decision-making technique and the analytical hierarchy process to make a choice between Six Sigma and DFSS in two multinational companies. Michel.O Leill [2004] has reviewed the post occupancy evaluation research methods and discussed how this can be deployed within the Six Sigma quality frame work.

Raisinghani et al [2005] have done conceptual study and found out that immediate goal of Six Sigma is reduction of defects. Reduced defects lead to process improvements and which enhance customer satisfaction. Authors have also described evolution of quality initiatives like TQM, Quality circles, kaizen, ISO 9000, and MBQNA. Authors have further conducted case studies on few organizations like GE, allied signal etc and suggested that Six Sigma project can have negative consequences if applied in wrong project. Makrymichalos et al. [2005]. have demonstrated the vital linkage between Six Sigma and statistical thinking. Authors illustrated key characteristics required for statistical thinking & common barriers in implementation of key principles of statistical thinking.. Klefsjoet al.[2006] have commented on both the TQM and Six Sigma. Authors have stressed that TQM has lost some of its charm before quality approaches such as Six Sigma and Lean

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

enterprises. Yeung[2007] have stressed upon the integration of ISO : 9001 and Six Sigma in organizational culture. Pranckevicious et al. [2008] has worked on application of 5S technique in improve phase of DMAIC methodology. Antony [2009] has presented the fundamental and critical difference between TQM & Six Sigma philosophies of quality management. The author has presented the viewpoint of the nine leading practitioners and academicians in countries such as USA, Singapore, India, UK, & Korea. The viewpoint of this type would help a lot to set out a research agenda in the future. Etienne[2009] has presented that Six Sigma can be used to analyze the quality system of company.

## Need for the Study:

Six sigma is the method used by the organization to improve their working standards so in this paper we study about the six sigma application in Samsung

## Objective:

To Study the Six Sigma Application in the Samsung Company

## Methodology:

This paper mainly based on secondary data .The articles which are published in the area of Six Sigma and the information from Samsung Website. Six Sigma is a set of techniques, and tools for process improvement. it was developed by Motrola in 1986 Six Sigma is a set of techniques, and tools for process improvement. It was developed by Motorola. Sir Bill Smith, " the Father of six sigma" introduce this quality improvement Methodology to Motorola. Six Sigma is now an enormous 'brand' in the world of corporate development. In 1995, Six Sigma became well known after Mr. Jack Welch made it a central focus of his business strategy at General Electric, and today it is used in different sectors of industry. By the year 2000, Six Sigma was effectively established as an industry in its own right, involving the training consultancy and methodology in six sigma.

## Fact and Data Based Approach:

The statistical and methodical aspects of Six Sigma show the scientific basis of the technique. This accentuates an important aspect of Six Sigma that in Fact and Data based.

## Project and Objective Based Focus:

The Six Sigma process is implemented for an organization's project tailored to its specifications and requirement. The process is flexed to suit the requirements and conditions in which a project is operating to get the best results. Apart from that, the Six Sigma is also objective based. The management needs some incentive to invest in the Six Sigma process. It is aimed to enhance profitability and to generate financial.

## The Customer Focus:

The customer focus is fundamental to the Six Sigma approach. The quality improvement and control standards are based on the explicit customer requirements.

## Teamwork Approach to Quality Management:

The Six Sigma process requires organizations to get organized when it comes to controlling and improving quality. Six Sigma actually involves a lot of training depending on the role of an individual in the Quality Management team.

**Six Sigma objectives:** Six Sigma methodology focuses on business improvement. Beyond reducing the number of defects present in any given number of products Any business seeking improved numbers must reduce the number of defective products or services it produces. Defective products can harm customer satisfaction levels.

**Reduce Costs:** Reduced costs equal increased profits. A company implementing Six Sigma principles has to look to reduce costs wherever it possible can without reducing Quality.

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

### Improve Cycle Time:

Any reduction in the amount of time it takes to produce a product or perform a service means money saved, both in maintenance costs and personnel wages. Additionally, customer satisfaction improves when both retailers and end users receive products sooner than expected. The company that can get a product to its customer faster may win her business.

### Methodologies

### 1.DMAIC: DMAIC is used for projects aimed at improving an existing business process

There are many aspects, approaches, and techniques involved in utilising the Lean Six Sigma model. It takes several days of training to really get into detail about the Lean Six Sigma Model, but this page is intended to give you a quick overview of what's involved. The simplest, clearest way to give some detail of how Lean Six Sigma works, is to talk about the DMAIC Cycle, which is at the heart of the Lean Six Sigma model.

### The DMAIC Cycle:

When implementing Lean Six Sigma for a process, business or product implementation, you must address each stage in the DMAIC Cycle.

### DMAIC stands for:

- Define
- Measure
- Analyse
- Improve
- Control

### Define:

In the first stage, you will define what needs to be done, or what the problem is.

### Measure:

Once you have successfully completed the define stage, you can begin to measure the current state of the process and productivity.

### Analyse:

You then take the data from the Define and Measure stages, and begin to analyse it, to fully understand what causes problems or low productivity.

### Improve:

Using all of the data you have gathered, you'll begin to come up with ideas and strategies for improving how things are done. That's where the Improve stage kicks in. Improve is the stage where you actively start to implement change and improvement.

### Control:

Equally important to Improve is the Control Phase. It's not enough to implement improvements – you need to maintain the new level of productivity and efficiency. Using the techniques within the Control Phase enables you to do this on an ongoing basis.

### 2. DMADV: DMADV is used for projects aimed at creating new product or process designs

DMADV is a Six Sigma framework that focuses primarily on the development of a new service, product or process as opposed to improving a previously existing one. This approach – Define, Measure, Analyze, Design, Verify – is especially useful when implementing new strategies and initiatives because of its basis in data, early identification of success and thorough analysis.

The DMADV methodology should be applied:

1. when a non-existent product or process needs to be developed at a company and…

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

2. when an existing process or product already exists but still needs to meet a Six Sigma level or customer specification.

Let's examine the five major phases of DMADV more closely.

**Define:**

The goals of the first phase are to identify the purpose of the project, process or service, to identify and then set realistic and measurable goals as seen from the perspectives of the organization and the stakeholder(s), to create the schedule and guidelines for the review and to identify and assess potential risks. A clear definition of the project is established during this step, and every strategy and goal must be aligned with the expectations of the company and the customers.

**Measurement:**

Next comes measuring the factors that are critical to quality, or CTQs. Steps taken should include: defining requirements and market segments, identifying the critical design parameters, designing scorecards that will evaluate the design components more important to the quality, reassessing risk and assessing the production process capability and product capability. Once the values for these factors are known, then an effective approach can be taken to start the production process. It is important here to determine which metrics are critical to the stakeholder and to translate the customer requirements into clear project goals.

**Analysis:**

Actions taken during this phase will include: developing design alternatives, identifying the optimal combination of requirements to achieve value within constraints, developing conceptual designs, evaluating then selecting the best components, then developing the best possible design. It is during this stage that an estimate of the total life cycle cost of the design is determined. After thoroughly exploring the different design alternatives, what is the best design option available for meeting the goals?

**Design:**

This stage of DMADV includes both a detailed and high level design for the selected alternative. The elements of the design are prioritized and from there a high level design is developed. Once this step is complete, a more detailed model will be prototyped in order to identify where errors may occur and to make necessary modifications.

**Verify:**

In the final phase, the team validates that the design is acceptable to all stakeholders. Will the design be effective in the real world? Several pilot and production runs will be necessary to ensure that the quality is the highest possible. Here, expectations will be confirmed, deployment will be expanded and all lessons learned will be documented. The Verify step also includes a plan to transition the product or service to a routine operation and to ensure that this change is sustainable. For any DMADV project, there may be more emphasis on certain components of the approach over others, though the goal remains the same: to address an identified issue and produce desired results in a way that can be maintained through normal operations.

**Six Sigma** was introduced into Korea in **1997.**The First National Quality Prize of Six Sigma was given to two companies. One is **Samsung** and other is **LG** electronics ; which are virtually the leader of six sigma in Korea. Samsung SDI was founded in **1970** as a producer of the black/white Braun tube. It began to produce the color Braun tube from 1980, and now it is the number one company for braun tubes in the world. The market share of Braun tubes is 22%. The major products are CDT (color display tube), CPT (color picture tube), LCD (liquid crystal display), VFD (vacuum fluorescent display), C/F (color filter), li-ion battery and PDP (plasma display panel). The total sales volume is about $4.4 billion and the total number of employees is about 18,000 including 8,000 domestic employees.

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

It has six overseas subsidiaries in Mexico, China, Germany, Malaysia and Brazil.

### The necessity of Six Sigma in Samsung

The problems were in the **large quality variations** in many products, repeated occurrences of the **same defects, high quality costs(in** particular**,** high failure costs**), insufficient unified information for** quality and productivity, manufacturing-oriented **small group activities,** and **infrequent use of advanced scientific methods. The** company concluded that the directions for solving these problems lay in scientific and statistical approaches for product quality, elimination of waste elements for process innovation, and continuous learning system for people. These directions in turn demanded a firm strategy for a complete overhaul, implying a new paradigm shift to Six Sigma. **Samsung** SDI made a contract with SBTI (Six Sigma Break-through Inc.) for Six Sigma consultation in 1999. It was a one-year, **$3.4 million** contract in which SBTI was supposed to help the company in every aspect of Six Sigma.

Samsung Electronics Co. (SEC) of Seoul, Korea, is perfecting its fundamental approach to product, process and personnel development by using Six Sigma as a tool for innovation, efficiency and quality. SEC was founded in 1969 and sold its first product, a television receiver, in 1971. Since that time, the company has used tools and techniques such as total quality control, total process management, product data management, enterprise resource management, supply chain management and customer relationship management. Six Sigma was added to upgrade these existing innovations and improve SEC's competitive position in world markets. The financial benefits made possible by Six Sigma, including cost savings and increased profits from sales and new product development, are expected to approach $1.5 billion by the end of 2002. Strategic Objective SEC wants to be a borderless, global brand that is a household word wherever its products and services are available. SEC's strategic objective is to create both qualitative and quantitative growth and deliver competitive value to all stakeholders—customers, partners and shareholders—while maintaining profitability. The objective is focused on the value chain of the company's four major businesses—home, mobile and office networks and core components. The emphasis is on creating a solid framework for these businesses by optimizing the supply chain to make operations as efficient and timely as possible. To achieve the goal of efficiency and timeliness, SEC has integrated Six Sigma into its entire business process. SEC saw the universal adoption of Six Sigma throughout the company's 16 businesses worldwide as the way to perfect its fundamental approach to product, process and personnel development. Deployment As a foundation for its Six Sigma thrust, SEC began by pursuing a pervasive goal of developing its internal resources, especially people, to put innovation first in the development and design of products, in manufacturing and marketing, and in the growth of employees.

With its strategic objectives established, the foundation was ready for the Six Sigma process to begin in late 1999 and early 2000 with training for SEC's management, Champions and other employees responsible for deployment planning. This was then expanded to use design for Six Sigma using the DMAIC phases for designing new products. Transactional Six Sigma was applied next to business and support processes internally and externally where customer needs and interactions have become increasingly critical. Through Sigma Park, an intranet site available worldwide to all SEC facilities, SEC provides reference materials, benchmarking opportunities, reports to senior management and enhancement for Six Sigma projects whose team members span several continents. Cross-border organizational learning is advanced as the Six Sigma methodologies are applied consistently from location to location.

Volume No:2, Issue No:5 (May-2017) ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

**Conclusion:**

Samsung has mainly implemented the use of SIX SIGMA to change its image the company has used tools and techniques such as total quality control, total process management, product data management, enterprise resource management, supply chain management and customer relationship management. Six Sigma was added to upgrade these existing innovations and improve SEC's competitive position in world markets.

**REFERENCES:**

Aghili, S. (2009), "A Six Sigma Approach to Internal Audits", Strategic Finance, vol. 90,no. 8, pp. 38-43

Al-Mishari, S.T. and Suliman, S. (2008), "Integrating Six-Sigma with other reliability improvement methods in equipment reliability and maintenance applications", Journal of Quality in Maintenance Engineering, vol. 14, no. 1, pp. 59-70

Anand, R. B., Shukla, S. K., Ghorpade, A., Tiwari, M. K. and Shankar, R. (2007), "Six Sigma-based approach to optimise deep drawing operation variables", International Journal of Production Research, vol.45, no. 10, pp. 2365-2385

Andersson, R. and Eriksson, H. and Torstensson, H. (2006), "Similarities and differences between TQM, six sigma and lean", TQM Magazine, vol. 18, no. 3, pp. 282-296

Antony, J. (2004), "Some pros and cons of six sigma: an academic perspective", TQM Magazine, vol. 16, no. 4, pp. 303-306 Antony, J. (2007), "Is six sigma a management fad or fact?", Assembly Automation, vol. 27, no. 1, pp. 17-19

Antony, J., Kumar, M. and Madu, C. N. (2005a), "Six Sigma in small and medium sized UK manufacturing enterprises", International Journal of Quality and Reliability Management, vol. 22, no. 8, pp. 860-874

Antony, J., Kumar, M. and Tiwari, M. K. (2005b), "An application of Six Sigma methodology to reduce the engine-overheating problem in an automotive company", Proceedings of the Institution of Mechanical Engineers, Part B: Journal of Engineering Manufacture, vol. 219, no. 8, pp. 633-646

Arnheiter, E.D. and Maleyeff, J. 2005), "The integration of lean management and Six Sigma", The TQM Magazine, vol. 17, no. 1, pp. 5-18

Baines, T.S., Lightfoot, H.W, Benedettini, O. and Kay, J.M. (2009), "The servitization ofmanufacturing: a review of literature and reflection on future challenges", Journalof Manufacturing Technology Management, vol. 20, no. 5, pp. 547-567

Banuelas, R. and Antony, J. (2004), "Six Sigma or Design for Six Sigma", TQMMagazine, vol. 16, no. 4, pp.250-263

Black, K. and Revere, L. (2006), "Six Sigma arises from the ashes of TQM with a twist", International Journal of Health Care Quality Assurance, vol. 19, no. 3, pp. 259-266

Brady, J.E. and Allen, T.T. (2006), "Six Sigma Literature: A Review and Agenda for Future Research", Quality and Reliability Engineering International, vol. 22, pp. 335-367

Breyfogle III, F. W. (2008), "Better Fostering Innovation: 9 steps that improve lean six sigma", Business Performance Management Magazine, vol. 6, no. 3, pp. 16-20

Bunce, M. M., Wang, L. and Bidanda, B. (2008), "Leveraging Six Sigma with industrial engineering tools ins crateless retort production", International Journal of Production Research, vol. 46, no. 23, pp. 6701-6719

Chakrabarty, A. and Tan, K. C. (2007), "The current state of Six Sigma application in services", Managing Service Quality, vol. 17, no. 2, pp.194-208

Chung, Y.C., Hsu, Y.W., and Tsai, C.H. (2008), "An empirical study on the correlation between Critical DFSS success factors, DFSS implementation activity levels and business competitive advantages in Taiwan's high-tech manufacturers.", Total Quality Management, vol. 19, no. 6, pp. 595-607

Coleman, S. (2008), "Six Sigma: An opportunity for statistics and for statisticians", Significance, vol. 5, issue 2, pp. 94-96

Dasgupta, T. (2003), "Using the six-sigma metric to measure and improve the performance of a supply chain", Total Quality Management and Business Excellence, vol. 14, no. 3, pp. 355-366

Davison, L. and Shaghana, K.A (2007), "The Link between Six Sigma and Quality Culture: An Empirical Study", Total Quality Management, vol. 18, no. 3, pp. 249-265

de Koning, H. and de Mast, J. (2006), "A rational reconstruction of Six-Sigma's breakthrough cookbook", International Journal of Quality & Reliability Management, vol. 23, no. 7, pp.766-787

de Koning, H., de Mast, J., Does, R.J.M.M., Vermaat, T. and Simons, S. (2008), "Generic Lean Six Sigma Project Definitions in Financial Services", Quality Management Journal, vol. 15, no. 4, pp. 32-45

Edgeman, R. L. and Dugan, J. P. (2008), "Six Sigma from products to pollution to people", Total Quality Management, vol. 19, no. 1-2, pp. 1-9

Ehie, I. and Sheu, C. (2005), "Integrating six sigma and theory of constraints for continuous improvement: A case study", Journal of Manufacturing Technology Management, vol. 16, no. 5, pp. 542-553

Ferrin, D., Miller, M. and Muthler, D. (2005), "Lean sigma and simulation, so what's the correlation? V2", in: Proceedings of the 2005 Winter Simulation Conference, 4-7 December 2005, Orlando, Florida, pp. 2011-2015

Furterer, S. and Elshennawy, A.K. (2005) "Implementation of TQM and lean Six Sigma tools in local government: a framework and a case study", Total Quality Management & Business Excellence, vol.16,issue10,Hammer, M. (2002), "Process management and the future of six sigma", MIT Sloan Management Review, vol. 43, no. 2, pp. 26-32

Han, H.S., Chae, M.J., Im, K.S. and Ryu, H.D. (2008), "Six Sigma-Based Approach to Improve Performance in Construction Operations", Journal of Management in Engineering, vol. 24, no. 1, pp. 21-31

Hensley, R. L. and Dobie, K. (2005), "Assessing readiness for Six Sigma in a service setting", Managing Service Quality, vol. 15, no. 1, pp. 82-101

Hong, K., Nagarajah, R., Iovenitti, P., and Dunn, M. (2007), "A Sociotechnical Approach to Achieve Zero Defect Manufacturing of Complex Manual Assemblies", Human Factors and Ergonomics in Manufacturing, vol. 17, no. 2, pp. 137–148

Hsieh, C.T., Lin, B. and Manduca, B. (2007), "Information Technology and Six Sigma Implementation", Journal of Computer Information Systems, vol. 47, no. 4, pp. 1-10

Johnston, A. B., Maguire, L. P., McGinnity, T. M. (2008), "Disentangling causal relationships of a manufacturing process using genetic algorithms and six-sigma techniques", International Journal of Production Research, vol.46, no. 22, pp.6251-6268

Kumar, M., Antony, J., Antony, F. J. and Madu, C. N. (2006), "Winning Customer Loyalty in an Automotive Company through Six Sigma: a Case Study", Quality Reliability Engineering International, vol. 23, pp. 849–866

Kumar, M., Antony, J., Madu, C. N., Montgomery, D. C., and Park, S. H. (2008), "Common myths of Six Sigma demystified", International Journal of Quality and Reliability Management, vol. 25, no. 8, pp. 878-895

Kumar, S., Jensen, H. and Menge, H. (2008), "Analyzing Mitigation of Container Security Risk Using Six Sigma DMAIC Approach in Supply Chain Design", Transportation Journal, vol. 47, no. 2, pp. 54-67

Kumar, U. D., Nowicki, D., Ramirez-Marquez, J. R. and Verma, D. (2007), "On the optimal selection of process alternatives in a Six Sigma implementation", International Journal of Production Economics, no. 111, pp. 456-467

Kumar, S. and Bauer, K.F. (2010) "Exploring the Use of Lean Thinking and Six Sigma in Public Housing Authorities", Quality Management Journal, vol. 17, no. 1 Kwak, Y.H. and Anbari, F.T. (2006), "Benefits, Obstacles and future of Six Sigma approach", Technovation, vol. 26, no. 5-6, pp. 708-715

Savolainen, T. and Haikonen, A. (2007), "Dynamics of organizational learning andcontinuous improvement in six sigma implementation", TQM Magazine, vol. 19, no.1, pp. 6-17 Schroeder, R. G., Linderman, K., Liedtke, C. and Choo, A. S. (2008),"Six Sigma: Definition and Underlying theory", Journal of operations management, no. 26, pp.536-554

Sehwail, L. and DeYong, C. (2003), "Six Sigma in health care", Leadership in Health Services, vol. 16, no. 4, pp. 1-5

Senapati, N. R. (2004), "Quality and Reliability Corner: Six Sigma: myths and realities", International Journal of Quality and Reliability Management, vol. 21, no. 6/7, pp.683-690

Shah, R. and Chandrasekaran, A. and Linderman, K. (2008), "In pursuit of implementation patterns: The context of Lean and Six Sigma", International Journal of Production Research, vol. 46, no. 23, pp. 6679-6699

Teresko, J. (2008), "How to organize for lean/Six Sigma", Industry Week, vol. 257, no.11, pp. 38-41 Thawani, S. (2004), "Six Sigma – strategy for organizational excellence", Total Quality Management, vol. 15, no. 5-6, pp.655-664

Thawesaengskulthai, N. and Tannock, J.D.T. (2008), "A Decision Aid for Selecting Improvement Methodologies", International Journal of Production Research, vol.46, no. 23, pp. 6721-6737

Thomas, A. and Barton, R. and Chuke-Okafor, C. (2009), "Applying lean six sigma in a small engineering company- A model for change", Journal of Manufacturing Technology Management, vol. 20, no. 1, pp. 113-129

van den Heuvel, J., Does, R.J.M.M. and Verver, J.P.S. (2005), "Six Sigma in healthcare: lessons learned from a hospital", International Journal of Six Sigma and Competitive Advantage, vol. 1, no. 4, pp. 380 – 388

van Iwaarden, J., van Der Wiele, T., Dale, B., Williams, R. and Bertsch, B. (2008), "The Six Sigma improvement approach: a transnational comparison", International Journal of Production Research, vol. 46, no. 23, pp. 6739-6758

Ward, S.W, Poling, S.R. and Clipp, P. (2008), "Selecting Successful Six Sigma Projects", Quality, vol. 47, no. 10, pp. 50-51

Volume No:2, Issue No:5 (May-2017)
ISSN No : 2455–7595 (Online)
International Journal of Research in Management Studies
A Peer Reviewed Open Access International Journal
www.ijrms

http://www.sixsigmadaily.com/what-is-dmadv/

http://www.leansixsigmatraining.ie/the-lean-six-sigma-model/

http://www.juran.com/elifeline/elifefiles/2009/09/Samsung-Uses-Six-Sigma-to-Change-Its-Image.pdf

https://www.slideshare.net/ShahiRasul/infosys-training-design