



INVESTIGATING METHODS AND CHALLENGES OF KAIZEN
EXECUTION: A CASE STUDY OF AN ENGINEERING FIRM IN
PAKISTAN

By
HARIS KARIMI

Submitted in Partial Fulfillment of the Requirements for the Degree of
MASTER OF SCIENCE IN SUPPLY CHAIN MANAGEMENT

Martin de Tours School of Management and Economics
Assumption University
Bangkok, Thailand

August 2018

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A Final Report of the Twelve-Credit Course
SCM 7201 and SCM 7202 Thesis

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Supply Chain Management
Assumption University

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August, 2018

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Declaration of Authorship Form

I, Haris Karimi, declare that this project and the work presented in it are my own and has been generated by me as the result of my own original research.

**INVESTIGATING METHODS AND CHALLENGES OF KAIZEN EXECUTION: A
CASE STUDY OF AN ENGINEERING FIRM IN PAKISTAN**

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Signed Haris Karimi

Date 13th September 2018

Assumption University
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ADVISOR'S STATEMENT

I confirm that this project has been carried out under my supervision and it represents the original work of the candidate.

Signed



(DR. CHANITA.....)

Date

25/9/18

ACKNOWLEDGEMENT

With the blessings of the Almighty, this thesis has reached its stage of final completion. This thesis is a result of exhaustive and much enthusiastic work. I extend my heartiest thanks to **Dr. Chanita Jiratchot** for conducting this course and making it interesting and knowledgeable, without her efforts and co-operation, this thesis would not have been possible. Moreover, I thank her for the confidence and trust she had in me, importance of which can in no way be underestimated. Also, I want to express my gratitude to **Dr. Piyawan Puttribarncharoensri** and **Dr. Vilasinee Srisarkun** for their guidance, comments, suggestions and encouragement while writing this thesis.

I would like to thank the officials and employees of ABC Engineering Pvt., Ltd. for their supportive, genuine and elaborated explanation, even much better than the questions asked. Special thanks go to the top management of ABC Engineering Pvt., Ltd. for providing me with the resources, because without those resources, I might not have finalized this research.

Furthermore, I would like to extend my gratitude to my friends and the staff of the Supply Chain faculty for their generous support on many facets. Last but not the least, my heartfelt appreciation goes to my family for all their encouragement and support.

I hope the readers of this thesis can complement the depth of the study and the efforts put into it.

Haris Karimi
Assumption University
August, 2018

ABSTRACT

KAIZEN is a system of continual undertaking by an organization to improve its business activities and processes with the goal to improve quality of products and services so that the organization can meet full customer satisfaction. KAIZEN can be built in and run with an integrated and company-wide approach through collaboration of all the levels of the organization that are top management, middle managers and front-line employees. Commitment, genuine participation and motivation of all the three actors are critical factors. The purpose of this study is to assess the methods and challenges faced by ABC Engineering Pvt., Ltd. in executing and sustaining kaizen. Quality circles were established and the 5S's were deployed as a beginning of kaizen execution in ABC Engineering Pvt., Ltd.

The research is descriptive research type and its very basic aim is to explore or to gain additional information about the subject area and to identify areas for further investigation. The study employed clustered sampling for the data collection. Top management commitment in building and sustaining a continuous improvement culture, clear communication channel, involvement of all members of the company, training on kaizen methodologies as well as fair and equitable motivational schemes including empowerment has a great impact on the effectiveness of kaizen practices, but the levels of all the above mentioned factors were not well practiced in ABC Engineering Pvt., Ltd. for ingraining the culture of kaizen. Most of the participants (employees) were dissatisfied with the applications of the above mentioned factors of Kaizen practices at ABC Engineering Pvt., Ltd.

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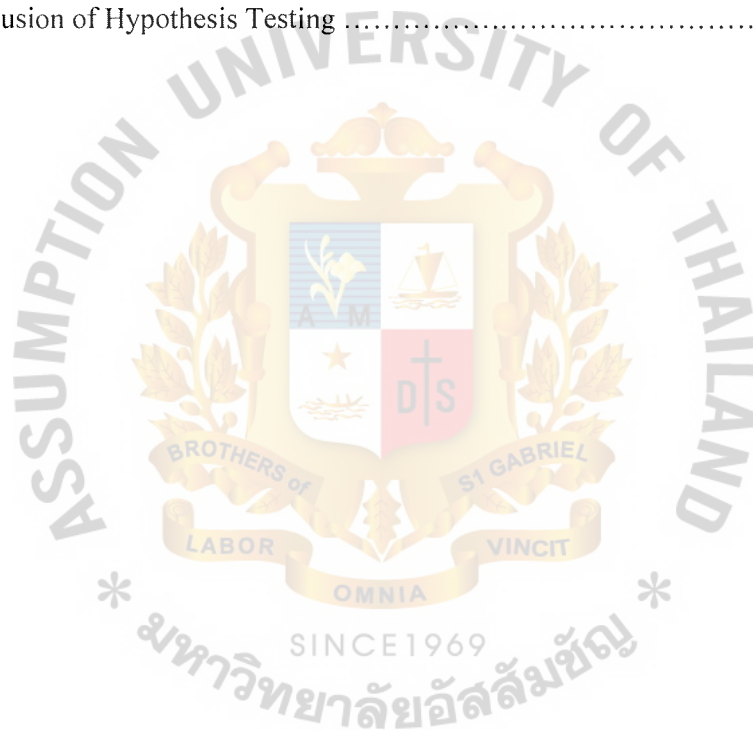
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CHAPTER I

GENERALITIES OF THE STUDY

This section exhibits a review of the whole investigation. It incorporates the background of the research, statement of the problem, objectives of the study, definition of terms, scope of the research, significance of the research and limitations of the study. The basic aim of the study is to evaluate the methods and challenges that confront ABC Engineering (Pvt.), Ltd. in executing and maintaining kaizen and to investigate or to increase additional information about the branch of knowledge and to recognize areas for further examination.

1.1 Background of the Research

In Japanese, kaizen signifies "continuous improvement." The word infers change that includes everybody—both managers and workers—and involves moderately little expense (Imai, 2000). The acquaintance of kaizen follows back with post WWII. The Toyota Production Framework is known for kaizen, where all workforce lines are depended upon to stop their moving production line if there should be an event of any variety from the standard and alongside their chief, prescribe a change to decide the variety from the standard which may begin a kaizen. This shows that kaizen has acquired incredible achievement in the Japanese monetary condition and financial condition and starts in the manufacturing areas.

Katsuki (2008) depicted that Kaizen is something more than a means for improvement since it addresses the daily problems occurring in the workplace and the manner by which these problems are overcome. Kaizen can be applied to any area needing improvement. In spite of the fact that the reasoning of Kaizen is for the most part of the material assembling areas, as of now most administration areas are occupied with sending kaizen as their driving quality management tool. Relevance ranges of kaizen are not restricted to manufacturing, rather they can be

connected to various divisions of the economy that require nonstop improvement in their activities.

From an economic point of view, an administration is an elusive commodity and can be viewed as the intangible equal to economic merchandise (Suarez, Smith & Dahlgaard, 2009). Manufacturing companies require exceptional management approaches that go past by just adopting the administration systems winning in manufacturing companies. Not at all like that of produced substance, benefit segments require due emphasis in the execution of kaizen or any management framework because of their remarkable highlights that distinguish them. The difficulties in manufacturing organization change with the level of customer contact, the organization's individual customization, and energy of labor (Katsuki, 2008).

So, the purpose of this research is to survey the level of kaizen methods and the challenges that the organization is confronting in accomplishing its goals from kaizen execution. In view of the assessments, the researcher has sent conceivable recommendations that will contribute to the legitimate execution of kaizen.

1.2 Background of the Company

The originating father of the ABC Group was Adamjee Haji Dawood who was born in 1880 in Jetpur, India. To start with, trade was confined to the rice business but later upgraded into jute business. In 1922, the originating father set up the biggest industry in Asia in Rangoon, Burma. From that point on, the chief set up a rice business in Rangoon and a jute factory in Calcutta. The British government knighted Adamjee Haji Dawood in 1933 for his work as a sharp giver and for financing different informative foundations.

In under three decades, the ABC Group kept running more than thirty businesses and undertakings. With the formation of Bangladesh in 1971, the gathering lost ABC Jute Mills, the biggest Jute Mill of its kind on the planet. A large group of different organizations were

additionally assumed and controlled by the government of Bangladesh including tea, sugar, cooking Oil and textiles. Later, XYZ Commercial Bank and ABC Life Insurance were both nationalized by the government of Pakistan in 1974.

Regardless of all these setbacks, the thoughts of Sir Adamjee Haji Dawood were still kept on being trailed by the family, which has part up into five gatherings and broadened its business into different segments.

In 1963, X, Y and Z (Pvt.), Ltd. (a backup of XYZ, UK) built up a processing plant in Karachi to make modern latches. In 1986, the Hanif Adamjee Group purchased over greater part shareholdings from XYZ and the organization moved toward becoming ABC Engineering (Pvt.), Ltd.

The organization today comprises of three assembling divisions with around 690 employees including qualified specialists, experts and talented laborers. It is the biggest association of its kind in Pakistan and keeps on driving with its inventive approach.

The Fasteners Division delivers an extensive variety of screw, bolts and rivets, for the Construction, Domestic Appliances, Automotive and Machinery areas of the economy. ABC Engineering (Pvt), Ltd. ISO 9001: 2008 confirmed, is the biggest fastener producer in Pakistan and catering with the best in class items to different ventures, retail and also trade showcase with more than 40 years of involvement in fasteners manufacturing. Their domestic and offshore corporate clients contain prominent brands in electrical and household machines, car, machine parts assembling, and furniture and construction enterprises.

ABC Engineering (Pvt), Ltd. makes more than 700 different sorts and sizes of quality fastener. Its total in house manufacturing offices and professional team empower us to produce hand-crafted and concentrated fastener according to the particular requirement(s) of our esteemed customers.

The Powder Metal Division is associated with the assembling of self-greasing up washers, bushes, oil pump gears, shock absorber parts and other sintered parts for bikes. Powder Metal technology is a remarkable assembling process which has been developing relentlessly and finding new applications in the course of the most recent 50 years. Beginning with mixing of different sorts of metal powders, the next stage is to firm the mixed metal powder into different shapes and sizes utilizing particularly planned water-driven and mechanical presses.

The compacted parts (green segments) are in this manner go through a sintering furnace where the temperature and atmosphere are attentively controlled, keeping in mind the end goal to keep up precise composition, prevent oxidation and at times, de-carburization. During this procedure, the powder particles are "welded" by methods for an atomic diffusion process, delivering the last material properties.

The Machining Division provides parts basically to the car businesses and the building businesses by and large.

Aside from having an expansive offer of the local market, the organization exports its products to the US, Europe, Australia and Middle East. ABC Engineering (Pvt.), Ltd. was ISO 9002 affirmed in 1999 by Lloyd's Register Quality Assurance. Thus, it updated its Quality Management System Standards to the third and most recent release of ISO 9001 out of 2002.

Although ABC Engineering Pvt., Ltd. is the top leading fasteners manufacturing company in Pakistan for decades, but it is still at its early stages (4-5 years) when it comes to the implementation of kaizen on the divisions of Fasteners and Powder Metal.

1.3 Statement of the Problem

In a progressively globalized economy, information technology is one of the key determinants of aggressiveness and development of firms and nations. Organizations can keep up their manufacturing quality by utilizing distinctive methodologies including arrangement of tremendous capital venture. Nature of manufacturing can likewise be accomplished through embracing diverse quality techniques like Six Sigma, Kaizen, and Total Quality Management, Lean framework and a blend of these and others.

Many researches after some time have concluded that entrance to manufacturing has a genuinely solid effect on development and financial advancement, and in addition to the reduction in the poverty. Productivity is extremely a fundamental factor in any manufacturing industry. Productivity of generation framework is comparable to the effectiveness of machine. Profitability is a normal measure of productivity of creation. Most noteworthy proficiency underway is gotten by fabricating required amount of item, of required quality, at required time, by the best and least expensive strategy. The fundamental necessity of any industry is to keep up the quality and efficiency of item in constant change. The best approach to expand this, is to apply appropriate assembling methodology and utilization of instruments to accomplish business objective, keeping in mind the end goal to remain focused and to build benefit. Kaizen is the best technique to enhance fabrication in ceaseless way, as Kaizen implies continuous change. Kaizen comes about for more prominent change in labor profitability. The Kaizen theory has been actualized in associations around the globe as an approach to enhance creation esteems while likewise enhancing representative's goodness and well-being. Kaizen is a group procedure with the goal that the cooperation between the works and the administration get increments. It is presumed that the utilization of Kaizen, change at working environment can be set up to drive efficiency change (Gauri, Gajbhiye, & Gaddekar, 2015).

Kaizen is a theory that inspires the entire organization with the intuition for improvement. it is the way of life of looking for consistent change, including everybody from the most senior manager to the most junior employee. Kaizen is a system that incorporates every specialist -

from upper organization to the cleaning crew. Everyone is asked to come up with little change suggestions constantly (Khan, 2011).

There are six supportive measurements, which should be available to supplement and support the essential dimensions of Kaizen as expressed by Suarez & Lingham, 2008. These measurements include commitment from top management, training, participation of all individuals from the organization, communication and cultural aspects in the organization with respect to positive outlook of workers and proper motivational plans.

ABC Engineering (Pvt.), Ltd., which is the sole fastener manufacturer in Pakistan has implemented Kaizen (continuous improvement) as service quality philosophy to bring about satisfactory level of quality in all its services. Though the system was deployed two years before using the methodology of quality circle, it cannot comprehend the goal of the company.

In 2007, it was observed that there were some areas in the Fastener Division where it became very necessary to implement the Kaizen for the sake of wastages, methods and control. Those areas were Annealing Process, Wire Drawing Process, Rolling Process and Electroplating Process.

There was unnecessary wastage declared in terms of scales on the annealed mild steel coils in the Annealing Process. A 100 kg wastage known as Ferric Oxide (Fe O_3) was declared from a total of two tons of materials in the process because the lid of the furnace was deformed after every 1-2 months. As we know that steel is more reactive at high temperature, it contacts with the air very easily. As mentioned, when the lid is deformed, this deformation gives a passage to penetrate the air in the chamber, and when it contacts with the steel, it forms Ferric Oxide is commonly known as Scales on steel in the Annealing Process.

In the Wire Drawing Process, it was very difficult to identify the wire grade after the wire drawing process because there was no identification mark on the steel coils, and several times, it

was observed that there was a mixing of coils of different grades. Because of this, after the process, one cannot identify the grades.

Furthermore, there was a big issue in the thread Rolling Area where end cutting (short bids) was mixed with the approved products, causing customer complaints.

Moreover, in the Electroplating Process, the plating product was taking time because of the poor cleaning, and it was extended up to two hours which was more than enough to what was recommended.

Due to the above mentioned reasons, this study was conducted **“To identify the methods and challenges during the execution and sustainability of kaizen at ABC Engineering (Pvt.), Ltd.”**

1.4 Research Questions

1. What is the level of training on kaizen in ABC Engineering Pvt. Ltd.?
2. What are the level of top management commitment in the execution as well as sustaining of kaizen as corporate culture?
3. How the communication practices do looks like; with regards to reporting templates and communication barriers that quality circles face?
4. How are employees motivated towards executing and sustaining kaizen in relation with corporate culture as well as positive mind-set?
5. How is the level of employee's involvement and participation in the execution of kaizen?
6. How different is the perception of employees who have different qualification level in ABC Engineering Pvt. Ltd.?
7. How different is the perception of employees who have different level of experience in ABC Engineering Pvt. Ltd.?

8. How different is the perception of employees who worked in different divisions in ABC Engineering Pvt. Ltd.?

1.5 Research Objectives

This research comprises of some objectives to be accomplished towards the end.

1. To determine the training level of kaizen in ABC Engineering (Pvt.) Ltd.
2. To decide administration of ABC Engineering (Pvt.) Ltd. is submitted on the execution and maintain of kaizen as corporate culture.
3. To find out whether communication boundary exists among staffs and the management in the sustaining and execution of kaizen practices.
4. To identify the degree to which employees/quality circles are empowered by motivation and existence conducive culture that help the execution of kaizen.
5. To identify whether the participation of companywide existence in the execution of kaizen practices i.e. 5s formation, problem solving, elimination of waste.
6. To investigate the difference in perception of employees who have different qualification in ABC Engineering Pvt. Ltd.
7. To investigate the difference in perception of employees who have different level of experience in ABC Engineering Pvt. Ltd.
8. To investigate the difference in perception of employees working in different divisions in ABC Engineering Pvt. Ltd.

1.6 Scope of the Research

The research was just restricted to kaizen methods at the working environment of corporate standard quality circles in light of the fact that the cross cutting quality circles are sent and are

making a few advances. They are the standard quality circles that are expected upon to achieve the general change/continuous improvement required to be ingrained in the organization, which have been really neglected to be functional as recognized through the preliminary questionnaires distributed to some selected employees. This research emphasized on top management commitment to the kaizen culture; level of awareness and training on kaizen systems; motivation and empowerment aspects; companywide participation; communication; and in addition, corporate culture and positive mentality.

This research was conducted at a Fasteners manufacturing company in Pakistan, where the target interviewees were the top level management. A list of employees was generated through the HR department in order to keep track of the respondents. The data as primary in nature were collected through a designed questionnaire (after conducting interviews with the top management) from the Fasteners Division & Powder Metal Division. The process of conducting interviews, designing questionnaire and collecting the responses of participants took a period of over a month.

A total of 552 questionnaires was distributed among the employees in the Fasteners Division and Powder Metal Division of ABC Engineering Pvt., Ltd. Out of 552 respondents, 452 were from Fasteners Division and 100 were from Powder Metal Division.

1.7 Significance of the Research

In spite of the fact that the execution of kaizen in Pakistan does not have a surprising foundation, there are advances and changes which have been observed in areas where it is connected as a management philosophy. Various researchers studied different aspects of kaizen like Wickens in 1990 who depicted the commitment of cooperation to make the idea of Kaizen. The key part and expert of every administrator as a pioneer of his group has been depicted by taking a case of Nissan Motor Plant in the UK. Dahlgard, Kristensen, and Kanji (2007) said that everyone is responsible for quality, especially senior management and the CEO; however, only the latter can provide the leadership systems to achieve results. Imai (2000) suggested a system designed to

provide the individual with the opportunity to be involved by contributing to the organizations. Most of the ideas for continuous improvements will come from the team approach: They must make it easy for the employees to suggest improvements, review them promptly and implement them. Dahlgaard, Kristensen and Kanji (2007) explained that people like to be recognized, either as a team or individual. A person's feeling of achievement, value to the organization, knowing that the organization cares, and having peer recognition maybe more important than any reward. Oakland (2007) explained that communication is one of the most important supportive dimensions to be considered when implementing kaizen in an institution. From the principles of kaizen, it becomes clear that communication is one of the key success factors in the quality improvement process. Irani and Beskese (2004) depicted that culture is a primary determinant of the institutional environment. Before embarking on a quality revolution, an institution must determine whether its culture offers an environment that is conducive to total quality. If not, the culture must be changed. Institutional culture is a key means to communicate the goals of the institution and the appropriate behavior in attaining those goals.

Other different organizations in the nation can take this research as a springboard to redo for their own particular situation and enhance their production conveyance proficiency by keeping nature of the manufacturing on the change wheel since benefit quality is the superseding issue of many organizations.

Moreover, the research could be utilized as a foundation for those concerned bodies that have enthusiasm to consider on the zone. Conclusions of the research might be vital contributions for additional research to be done on the zone.

1.8 Limitations of the Research

Limitations of the research include the weaknesses of the study beyond the control of the researcher. This is especially true in the descriptive research where the variables involved are continuous variables such as Top management role & commitment, Training and Awareness,

Participation, Motivation & Empowerment, Effective communication and Culture & positive mindset. Subsequently, to sum up the outcomes for the bigger gatherings, the examination should have included more members at various levels in the part of engineering.

Now and again, through Kaizen, it is essential for the organizations to encounter a whole reset of their strategies and approach. In this way, it can be exceptionally troublesome and make an assortment of the issues to the business in case they are not arranged or arranged to do in that capacity. It is essential for the organizations to be greatly open to change and also grant in a profitable and open route with the ultimate objective for Kaizen to be executed viably. Since workers are a basic bit of Kaizen's prosperity, the organization needs to develop a circumstance where representatives are not terrified to talk or give suggestions for being provincial.

Another limitation of this research could be that Kaizen can be insufficient that the new approach may, at to start with, be exceptionally moving and energizing, yet in the event that the employees and company do not endeavor to maintain this, the buzz can subside rapidly and make every progressions return to their old ways. This can be extraordinarily confounding for the organization that has contributed vitality and included money in this strategy, just to make them a proper workforce. Moreover, it can redirect the organizations from re-executing Kaizen in a way that will truly work in a view of a previously terrible experience.

Moreover, a few workers might not have any desire to experience the essential changes in their strategies to see the benefits of Kaizen. Not every person modifies well to change, so it is basic for everyone to have an unmistakable attention of Kaizen and the reasons that the organization is executing it before the actual procedure begins. Similarly as different changes, Kaizen will not have an overnight achievement or see the accomplishment for quite a while; subsequently the long haul goals should be precisely be appreciated by those included.

Findings of the study cannot be applied to every firm because every firm has a different style of working. Rules, regulations and policies vary from company to company.

1.9 Definitions of the Terms

5S	The 5S is the acronym of five Japanese words for seiri (association), seiton (tidiness), seiso (cleanliness), seiketsu (standardization) and shitsuke (discipline) (Katsuki, 2008).
Cross Cutting Quality Circles	They are transitory and will be shut when they accomplish their arranged activities completely or new QCs might be made when required. Their primary objective is to address transversal/basic issues spoken with standard quality circles and support in taking care of transversal issues.
Empowerment	Offering power to individuals who are at a distraught spot in the association (Kanter, 1993).
Kaizen	Kaizen is a Japanese word that has turned out to be basic in numerous western organizations. The word demonstrates a procedure of persistent change of the standard method for work (Imai, 2000).
Quality Circle	A small group of people doing similar work who meets voluntarily and regularly, usually under the leadership of their supervisors. They identify and discuss their work problems (Imai, 2000).

Standard Quality Circles	They are permanent and will become more mature & developed from time to time. Their main goal is to implement the 5S and address day to day problems related to their domain and improve their way to do their tasks.
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Waste	A wide range of non-value adding activities.
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1.10 Chapter Summary

The ultimate goal of manufacturing industries today is to expand efficiency through system simplification, hierarchical potential and incremental changes by utilizing current methods like Kaizen. The vast majority of the manufacturing businesses are right now experiencing a need to react to a quickly changing in the client needs, wants and tastes. For enterprises, to stay aggressive and hold piece of the overall industry in this worldwide market, consistent change of manufacturing system processes has turned out to be essential. Competition and ceaselessly expanding guidelines on consumer loyalty have ended up being the perpetual drivers of the organization's performance change.

The ambition behind this research went for evaluating the practices and challenges faced by ABC Engineering (Pvt), Ltd. in executing and maintaining kaizen. Quality circles were set up and the five S's were sent as a start for kaizen usage in ABC Engineering (Pvt), Ltd. The study is descriptive study type and its extremely essential point is to investigate or to increase additional data about the sensitive area and to distinguish zones of further examination.

The investigation was directed to distinguish the objection and processes of kaizen in ABC Engineering (Pvt), Ltd. and utilized information collection tool of interview questions for higher

authorities. Respondents were educated that their reactions are just for scholastic reason and will be dealt with extreme privacy.



CHAPTER II

REVIEW OF RELATED LITERATURE

This section has gone through critical review of relevant theories, which need to be reflected to build a substantial theoretical framework for the study. This chapter focuses on fundamentals of kaizen and factors that need to be considered while implementing it in the organization.

2.1 Kaizen Concept

Kaizen was made in Japan following World War II. The word Kaizen signifies "nonstop change" or "continuous improvement". It originates from the Japanese words "kai" which signifies "change" (to right) and "zen" which signifies "great" (to improve things). Fundamentally, kaizen is for little enhancements, yet did consistently and include all individuals in the association (Venkatesh, 2007). The creator likewise said that the kaizen is inverse to huge awesome developments and requires no or little speculation. The standard behind is that countless changes are more compelling in a hierarchical situation than a couple of upgrades of expansive esteem.

For Japanese, kaizen implies consistent change. The word infers change that includes everybody, the two supervisors and laborers and involves moderately little cost (Imai, 2000). Khan (2011) further clarified kaizen as Japanese quality approach which is profoundly instilled in the brains of the two chiefs and masters that they consistently do not comprehend that they are thinking kaizen.

Singh and Singh (2009) discussed diverse articles that have been distributed in this field and displayed an audit of writing. A definitive goal of assembling enterprises today is to build profitability through framework rearrangements, hierarchical potential and incremental enhancements by utilizing present day systems like kaizen. The vast majority of the assembling businesses are as of now experiencing the need to react to a quickly changing client needs,

longings and tastes. For businesses, to stay aggressive and hold piece of the overall industry in this worldwide market, ceaseless change of assembling framework forms has turned out to be vital. Rivalry and ceaselessly expanding benchmarks of consumer loyalty have ended up being the perpetual driver of associations execution change. Kaizen implies tireless change in execution, cost and quality. Kaizen tries to connect with the specialists, increase worker satisfaction, support a sentiment accomplishment, as needs be making a pride of work. It does not simply ensure that amassing shapes advance toward ending up slimmer and fitter, yet forego waste where regard is incorporated. Kaizen is now a for the most part analyzed, and associated gathering thinking, in an arrangement of endeavors over the globe.

Kaizen is a Japanese word for improvement, passing on the goal in industry of all the uncontracted and for the most part contracted activities which happen in the Japanese workplace to overhaul the tasks and the earth. Kaizen embodies the initiation of the workforce, giving the key channel to delegate to add to their organization's headway. In detachment, the idea appears to be straightforward: "with each combine of hands, you get a free cerebrum" (Bassant, 2000).

The theory of Kaizen has aroused extensive enthusiasm among analysts in light of the fact that it builds efficiency of the organization and creates superb items with least endeavors. A few researchers have examined the idea of kaizen including Deniels (1996) and Reid (2006).

Wickens (1990) depicted the commitment of cooperation to make the idea of kaizen. The key part and expertise of every administrator as a pioneer of his group have been depicted by taking a case of Nissan Motor Plant in the UK. Accentuation is put on collaboration, adaptability and quality. Cooperation and responsibility do not originate from including the delegates of workers, yet from coordinating contact and correspondence between the individual and his supervisor.

Melnyk, Calantone, Montabon and Smith (1998) portrayed seven qualities that recognize kaizen occasions from different process change approaches. Initially, a kaizen occasion is an independent here and now mediation (normally three to five days), with an obviously characterized, limited life (Cuscela, 1998) and (Sheridan, 1997). Second, the extent of a kaizen

occasion is centered on part of a particular esteem stream (Laraia, Moody, & Hall, 1999). Third, kaizen occasions are low capital mediations. Occasions by and large have next to zero spending plan for capital hardware; in this way, the concentration is on enhancing existing procedures, instead of executing arrangements that require interest in new innovation (Sheridan, 1997). Fourth, kaizen occasions are group based, contained representatives from the focused on work range and support capacities including, for instance, designing, acquiring, and generation control. Kaizen occasions make utilization of worker learning to grow better arrangements and are guessed to build proprietorship (McNichols, Hassinger, & Bapst, 1999). Fifth, kaizen occasions are activity situated. Kaizen groups are regularly given to the specialist to execute arrangements as they are produced, without extra direct endorsement from administration (Laraia, Moody, & Hall, 1999); (Minton, 1998); (Oakeson, 1997); (Sheridan, 1997). Sixth, most kaizen occasion objectives are quantifiable. Regular measurements incorporate efficiency, work-in-process (WIP), floor space, throughput, lead-time, set-up time, part travel time, percent on-time conveyance, imperfection rate, throughput and item configuration measures, for example, value, product offering decent variety, and so on (Kosandal & Farris, 2004). Seventh, kaizen occasions are intended to make a cycle of persistent change. By utilizing kaizen occasions at numerous focuses in time, cycles of execution change inside a given procedure are made.

Kaizen is a critical thinking process. All together for an issue to be effectively comprehended and understood, the issue must be perceived and the important information is to be accumulated and broken down. Attempting to take care of an issue without hard information is much the same as reestablishing a hunches and feeling-not an exceptionally logical or target approach (Anthony, Jane, & David, 2005).

Cheser (1998) clarified that Kaizen depends on rolling out little improvements all the basic reducing waste and constantly enhancing profitability, security, and adequacy. While Kaizen has verifiably been connected to assembling settings, it is presently generally connected to benefit business forms also.

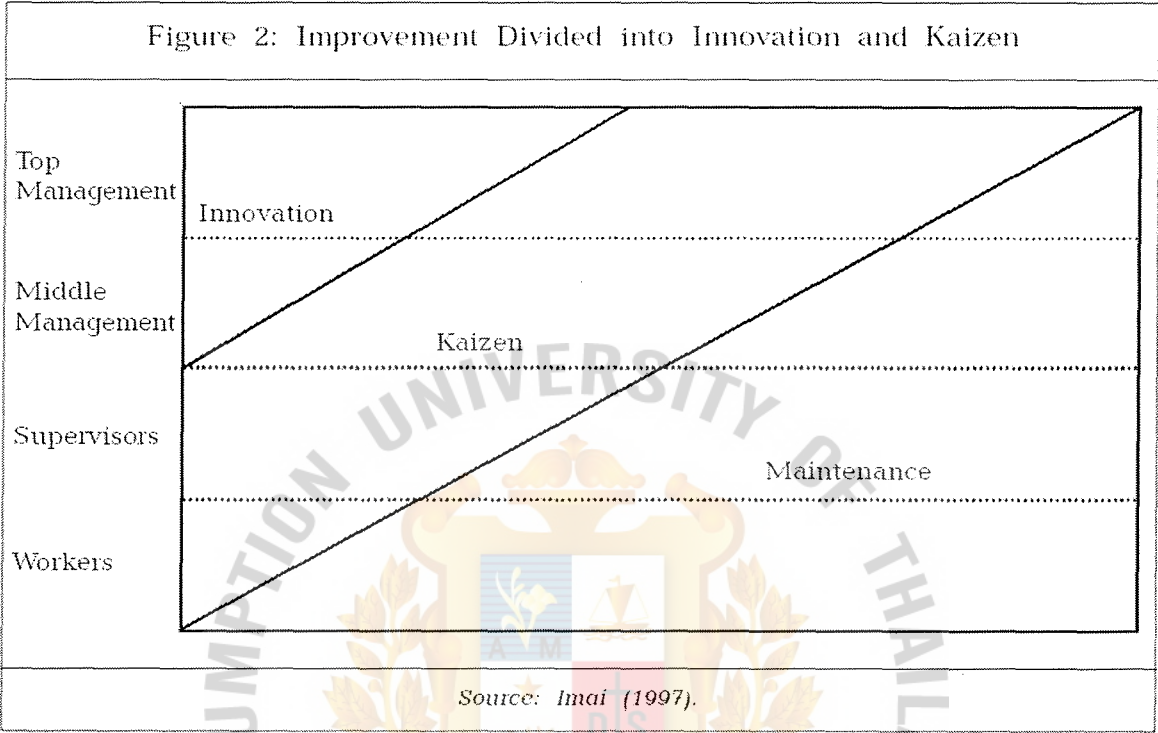
Chen and Wu (2004) clarified that CI can be created and maintained through the advancement of good change model and administration bolster. Truth be told, it is difficult as a general rule. The change case may fizzle without painstakingly looking at the issue in the movement.

Abdolshah and Jahan (2006) depicted how to use continuous improvement contraptions in different life times of the affiliation. Affiliations are facing the issue of which continuous improvement mechanical assembly should be used in the midst of different stages and life times of affiliation. Methods of applying both quantitative and subjective mechanical assemblies in different life times of an affiliation have been discussed.

Hyland, Milia and Sloan (2004) featured the real potential advantages of CI. These advantages are expanded business execution (regarding lessened waste, setup time, breakdowns, and lead time) and expanded 'individual's execution' as enhanced advancement, strengthening, interest, and nature of work life of representatives; all of which address contemporary societal needs.

Imai (1997) portrayed that the change can be partitioned into Kaizen and development. Kaizen implies little enhancements because of continuous endeavors. Development includes a radical change because of substantial venture of assets in new innovation or gear. The creator likewise clarifies that with regards to Kaizen, administration has two noteworthy capacities: support and change. Support alludes to exercises coordination towards keeping up current innovations, administrative and working guidelines, and maintaining such measures through preparing and teaching. Under its support work, administration plays out its doled out errands, so everyone can take after standard working method. Change, in the interim, alludes to exercise coordination towards lifting current norms (Figure 2.1).

Figure 2.1: Improvement Divided into Innovation and Kaizen



Kim and Mauborgne (1999) called additional change as "impression" and not 'modernization'. As indicated by them, organizations should concentrate on a proactive technique, which concentrates on the making of new clients and additionally supporting the existing clients. They allude this methodology as 'esteem development system' where the accentuation is on esteem and clients and to a lesser degree on the opposition. The emphasis on esteem advancement pushes directors to go past consistent incremental enhancements of existing items, administration, and procedures to better approaches for getting things done.

2.1.1 Kaizen Linked with Case Studies

The contextual analyses are the essential intends to check the adequacy of Kaizen reasoning in various fields of utilization, particularly in assembling ventures. Numerous scientists have performed contextual analyses to cover extensive variety of advantages like expanded

profitability, enhanced quality, diminished cost, enhanced security and quick distribution, and so forth. (Powel, 1999).

Chaudhari (1997) depicted the important variables of the continuous improvement framework at Morris Electronics Limited, an Indo-Japanese joint firm that has added to sensational change in the profitability and managed aggressiveness. The study inspects corporate esteems regarding sets with values held by people inside the association. A basic technique is recommended that enables corporate esteems to be mapped into both demeanor and administration style required to actualize and bolster authoritative change. The creator likewise features the advancement of cooperation among Morris and Hitachi metals and its effect on the improvement of the more elevated amount capabilities.

Sheridan (1997) has connected Kaizen cases to Allied Signal Inc., stream motor assembling industry to conquer the challenges like low creation rates and extensive floor space necessities. The outcome demonstrates 89% change in WIP (work in process), 88.5% expansion in efficiency and floor space prerequisites are spared more than 2000 sq. ft. by applying Kaizen cases.

Erlandson, Noblett and Phelps (1998) applied Kaizen mechanism, i.e., poka-yoke on fuel-fitter aggregation. The installation that has been presented demonstrates significant variety in the gathering procedure. The old installation is supplanted by all the more encouraging of the two apparatuses that have been outlined, constructed and tried. Results demonstrate the expansion in the creation rate of around 80% and the mistake rate drops from over half to around 1%. Furthermore, an extensive number of people who could not play out the get together assignment with the old apparatus are presently having the capacity to ably play out the undertaking with the new installation.

Malik and Zhuang (2006) concluded that both the enterprises, Spanish and Pakistani are utilizing consistent change techniques and theory yet with an alternate extent and approach. Spanish industry is relatively more experienced and progressed from Pakistani industry, their collectivistic culture is likewise assuming a noteworthy part in fruitful usage of TQM rehearses.

In Pakistani industry, however at current stage, the sending of TQM hones is nearly moderate and low particularly in SME's, yet not demoralizing as substantial organizations are getting a charge out of productive outcomes through effective usage of these practices. Pakistani industry needs to change its approach and needs to receive TQM rehearses all in all rather mostly. They have to understand that securing of ISO or whatever other quality affirmation confirmation cannot ensure any change or long haul survival unless some genuine earnest measures are taken to acquire change association in a sorted out way with equivalent and concurred contribution of all staff and this arrangement ought to be carried on in the future as well. They additionally need to change their arrangements towards their workers by making them spurred and gifted with more money related motivating forces and through compelling preparing. At long last, those associations particularly SMEs that are presently experiencing demoralizing results, these practices should endeavor to procure administrations of outer advisors for recognizable proof of shortcomings in their procedures.

Adams, Componation, Czarnecki and Schroer (1999) clarified that recreation is the intense apparatus to help continuous improvement process change. Two contextual analyses including a business producer and aviation maker have been performed where reenactment is utilized to help the continuous improvement steps. In rundown, the accompanying conclusions are made as follows:

Process reproduction can be utilized to help ventures in the continuous improvement procedure.

To be best, recreation model ought to be created.

For new circumstances, fundamental and basic models of the procedure are a decent approach to begin.

Illustration of the outcomes with administration can be helpful.

Animation elements of the reenactment give a capacity to give knowledge into the production line work.

Savolainen (1999) has supervised two contextual analyses including a medium estimated metal industry and other bigger gathering in the development and solid industry. The primary point of

the investigations is to expand the comprehension of the procedures and elements of CI execution. The attention is set on how these organizations are reestablished through the implanting of value related administration belief system. The paper has examined the procedures and elements of CI execution thoughtfully and observationally. The outcomes demonstrate that the elements of CI usage process is cyclic in nature, which advances at various rates and with changing power.

Burns (2000) characterized the significance of two strategies in particular Overall Equipment Effectiveness (OEE) and set up lessening, taking a case of Weston EU Company. No fitting measures of the procedure and hardware utilization are accessible. At first, six pilot ranges have been recognized, out of these, three ended up being fruitful. OEE is really used to drive CI in the improvement of an organization. Setup lessening has been connected to decrease change over circumstances, to take care of the client demand for more noteworthy item blend and to beat the challenges in machine stacking. The two strategies are portrayed regarding how they help the organization to drive change in the center of business-70 capital hardware CNC machines.

Shaikh (2012) concluded the implication of quality condition in organization's vision, mission and frameworks for enhanced business execution. Money- related ability and administration as an upper hand are additionally intensely reliant on TQM hones. Critical confirmations are additionally accessible now to consider authoritative fat as an imperative territory for company's execution change. Each of the theories was demonstrated and extensively showing the relationship in business execution change as far as income, productivity and fat decrease by uprightness of TQM hones. With the finish of this paper, plainly FMCGs can proceed with their up degree as far as income and productivity and fat lessening by concentrating on quality at each progression mostly in procedure plan and business process designing. Hence, authoritative execution is enhanced as far as income and benefit by having appropriate key fitting amongst TQM and the other supplementing factors like income, gainfulness and fat decrease which are the quintessence of this investigation and are demonstrated experimentally as well.

Chen, Dugger and Hammer (2000) applied Kaizen approach on a little assembling outlining framework. The concentration of this venture is the virtual produce of meat tenderizer. The item is presently excessively costly, making it impossible to deliver. Keeping in mind the end goal to address this framework outline issue, a plan build, an assembling engineer, a quality designer and two machining administrators are welcome to be the colleagues in this Kaizen extend. In the wake of recognizing the issue, a conceptualizing procedure has been utilized to investigate the group objectives by getting the data on current procedure of the item. Cell fabricating framework is acquainted with decrease generation costs. Kaizen brings CI, it decreases 25% of the unit cost, diminishes floor space necessity by 15% and it additionally builds up a superior correspondence arranged all through the association.

Lee (2000) has coordinated a logical examination at Nichols Foods creating sustenance things. There was a nonattendance of standard working techniques, power and structure. The examination delineates how the association regards have upgraded the work environment for the delegates and induced them to achieve significance. The examination depicts on how the Kaizen design has been executed in this association using 5S instrument and gathering getting ready. The result demonstrates reduction in quality expulsions, decrease in change over conditions and augmentation in collecting efficiencies.

Lee, Dugger and Chen (2000) illustrated that consideration of the Kaizen approach in mechanical innovation is useful. This contextual investigation gives a portrayal of the means used to execute lean deduction in a normal mid-western organization building up a dynamic Tri-Resin fiberglass pole, which has 100 times more elasticity than that of steel. In the wake of executing lean consideration, decrease in space utilized as a part of the building, material dealing with costs and furthermore bring down piece rates can be normal. Activities that are portrayed in this research can be utilized inside the current framework in all assembling centered projects to guarantee that graduates are adequately acquainted with this essential idea.

Ashmore (2001) discovered that Kaizen is a resolute weapon in hard-pressed producing businesses. Kaizen system has been connected to Toyota in light of expanding rivalry and

expenses. It has discovered that after execution of this procedure, the deal is expanded by several at the very least 69% and its benefit by 54 times in a monetary year. The creator has likewise examined the part of SS by dispensing with waste and JIT in making CI.

Palmer (2001) has concentrated his investigation on the 'stock administration Kaizen' that has been directed at 'BAE SYSTEM' to evacuate the Muda (waste) from the accepting and putting away process. Kaizen case incorporates around five months and one week from real examination of the procedure and the rest of two actualized progressions that are distinguished. Results demonstrate that the procedure time is diminished from 610 hours to 290 hours. At last, the Kaizen occasion brings about sparing admirably more than million dollars for every year.

Ahmed, Hasan and Fen (2005) conducted an examination in a casting based assembling plant, which is at present actualizing Kaizen to accomplish higher profitability. The examination has directed on the Performance Indicators (PIs) right now being measured by the organization. Cautious examinations and perceptions have been taken to demonstrate the viability and proficiency of the usage of the Kaizen framework in an imaginative way. Subsequent to breaking down the gathered information, adequate data has been produced on different parts of execution assessment. Notwithstanding, because of the absence of budgetary information, financial based PIs could not be done in this investigation.

Granja, Picchi and Robert (2005) studied about the objective and Kaizen costing idea in a development organization. The point is to build up the structure adopting together these two coordinating strategies, which give a premise to an aggregate cost administration framework. The creators clarified that the proceedings on the arrangement of Kaizen exercises are expected to accomplish item execution and decrease the cost. Consolidating target and Kaizen costing are effective approaches for the development of an organization by guaranteeing an incentive for the client at a low, yet productive amount.

Vaidya and McCartney (2006) explained the utilization of Kaizen to welding operations by taking two cases as examples of more than 100 welding execution examinations that have been

completed in Canada lately. To control self-loader welding forms, 27 distinct parameters must be controlled to guarantee nature of the weld. The creators proposed that Kaizen ought to be connected to three welding parameters including wire encourage speed, welding method and welding speed, as the beginning. They additionally clarified that it requires the inclusion of everybody in the association. By following these principles, fabulous outcomes can be delivered.

Kikuchi, Kikuchi and Takai (2007) applied OEE technique to cost contraction by utilizing Kaizen strategy to a semiconductor industry. The utilization of gasses and chemicals for a particular process is high. Two distinct techniques for Overall Consumable Effectiveness (OCE) procedure are received to decrease the utilization of gasses and chemicals for 12-things. The outcome shows a cost contraction of 7% yearly for the utilization of gasses and chemicals. This action has raised the attention that the Kaizen procedure can be connected to more different ranges.

Chandrasekaran, Kannan and Pandiaraj (2008) applied Kaizen system to tackle the 'part crisscross issue' in vehicle get together generation line. Well-ordered Kaizen strategy has been taken after taking care of the issue by information accumulation, underlying driver investigation, choice of the best arrangement technique, restorative activity and documentation. The different advantages that have been seen subsequent to executing Kaizen incorporate end of major useful issue, lessening in quality dismissals, end of modifying forms and a significant cost sparing.

2.1.2 Kaizen Linked with Surveys

Gibb and Davies (1990) have recognized and featured the achievement factor for continuous improvement what's more, imaginative methodology in Australian Small to Medium Enterprises (SMEs), the significance of market introduction and compelling vital detailing in fruitful SMEs. The basic achievement factors that have been featured in the review incorporate advancing a corporate culture, making a powerful structure, dissecting contenders, creating participations and associations, and creating adaptability and speed of reaction.

Build on the analysis in a small scale fabricating organization, Irane and Sharp (1997) recommended that continuous improvement methodology ought to be instilled as a conviction into the workers' heart. The perfect circumstance of continuous improvement technique is its combination with the corporate culture.

Bassant (2000) presented an overview that has been led by Continuous Improvement Research Advantage (CIRCA) at UK firms. The study proposes that 65% of organizations view continuous improvement as imperative deliberately, around half have founded some types of methodical programs to apply these ideas, 19% claim to have an across the board and supported procedure of continuous improvement in operation, and of those organizations utilizing continuous improvement, 89% cases have affected profitability, quality, conveyance execution or blend of these.

Hongming, Sun and Xu (2000) carried out a review in Chinese organizations and found that not all organizations that have done continuous improvement exercises accomplish fancied outcomes. It has noteworthy effect on organizations, where continuous improvement usage requires sufficient contribution on organization capital human asset and authoritative exercises. In the hierarchical structure, it is a test for organizations' business standards and operations strategies.

Mackle (2000) presents a review led by a Kaizen initiate that has been outlining and executing different continuous improvement programs in a large portion of the organizations in UK. The foundation has directed a review with the majority of its UK customers. Results of the review demonstrate that associations have not effectively executed these change programs. The open doors for development are likewise distinguished in this overview.

Terziovski (2001) presents the aftereffect of a mail study used to examine the connection among continuous improvement and development practices and SME execution in 115 Australian assembling businesses. Nineteen questions have been incorporated into the poll. Fifty-seven autonomous factors and 12 subordinate factors are dissected utilizing various relapse

investigation. The creator presumes that continuous improvement advancement administration methodology and framework are noteworthy indicators of SME execution.

Gonsalves (2002) executed a review on the impact of ERP and Continuous Improvement on the execution in 500 assembling organizations. He reasons that continuous improvement usage has positive impact on BPR execution. Coordinated Continuous Improvement and BPR effects affect the organization's execution.

Shafiq (2011) investigated the degree of total quality administration (TQM) execution in the material organizations of an under-inquired about nation, Pakistan. It likewise analyzes whether ISO 9001 accreditation prompts enhanced business results and selection of TQM. The apparent relationship of TQM hones with hierarchical execution and issues confronted by the example organizations amid the usage of value change activities are likewise distinguished. The results of the research demonstrated that TQM rationality is ineffectively actualized in the specimen material organizations. The dominant part (81%) of respondents showed that their organizations are affirmed to ISO 9001:2008, though MBNQA, the EFQM perfection model and Six Sigma are not given much significance. The accreditation of ISO 9001 encourages the accomplishment of better business comes about and the appropriation of TQM hones. Be that as it may, the length of confirmation is not related with the business comes about. All TQM rehearses have a critical positive association with business comes about; be that as it may, organization and assets are the best indicators of business comes about. The usage of TQM hones is not influenced by authoritative size. Notwithstanding, it shifts over the sorts of material organizations. The absence of familiarity with TQM, supervisors' impression of value as cash squandering action and the usage of numerous quality change programs are the significant issues confronted by the specimen material organizations amid the execution of value change activities.

Shah and Hussain (2016) conducted a survey- based research and investigated the execution of lean assembling rehearses in material enterprises of Pakistan. Seventy-six reactions were gotten. The consequences of the investigation demonstrated that the material area is toward the starting phase of lean usage – the greater part of the overviewed organizations were experiencing significant change to execute lean. The most vital driver to actualize lean was observed to be

association's persistent change program that took after by the drive to concentrate on clients, and wanted to utilize best practices. The respondents saw cost lessening to be the greatest advantage that can be accomplished by actualizing lean, trailed by consumer loyalty, and enhanced conveyance time. Among the instruments and procedures 5S, quality control circles, kaizen and SMED were utilized broadly. Assembling arranging and control was not formally executed. Human asset -related variables were seen to be significant to successfully execute lean. Level of execution was found to have a noteworthy association with the size and the kind of organization and not with the age of the organization. Absence of attention to execute lean, organization culture, absence of correspondence, and worker resistance were the fundamental hindrances confronted by the specimen organizations amid the usage of lean.

Malik and Zhuang (2006) performed an overview in 105 Spanish and 50 Pakistani organizations to examine the result of continuous improvement hones did in these ventures. The poll is flowed to various enterprises. Twelve continuous improvement instruments have been explored. The outcome demonstrates that the Spanish businesses use these apparatuses more than Pakistani ventures. The Spanish businesses are relatively more experienced and progressive than Pakistani businesses.

Tseng, Chiu and Chinag (2006) investigated the impacts of continuous improvement and cleaner creation on operational execution. An aggregate of 223 reactions have been acquired after circulation of the poll. An example has been gathered by means of an overview of Taiwan electronic assembling firms. The immediate and circuitous impacts of free factors on subordinate factors are tried by Structural Equation Modeling (SEM) system. The outcome demonstrates that the continuous improvement will not not have the capacity to straightforwardly enhance the operational execution. Nonetheless, continuous improvement assumes a critical part in cleaner creation usage.

Yan-Jiang, Dan and Lang (2006) manipulated a review by utilizing the information of worldwide persistent development system to investigate the affecting components of continuous improvement. This review outlines 18 inquiries to portray the reasons why organizations are

executing continuous improvement exercises, 13 inquiries to portray the organization's outer condition and 11 inquiries to depict the circumstance of continuous improvement exercises in utilitarian branches of the organizations. The outcome demonstrates that the interior inspiration factors are in charge of advancement of continuous improvement exercises and have differing level of impact on these exercises.

Malik, Li-Bin, Ye Zhuang and Xiao-Lin (2007) manipulated a review by a near examination between two Asian creating nations, China and Pakistan, by exploring how they are conveying continuous improvement rehearses. The poll comprises of 18 chosen pieces of inquiries identified with association and its operation of continuous improvement, supporting apparatuses utilized as a part of the change exercises, impacts of change exercises and organization foundation and its attributes. The outcome demonstrates that the enterprises in both nations are sending continuous improvement approaches, yet with various extents.

2.1.3 Categories of Kaizen

According to Imai (1997), Kaizen can be of the following types:

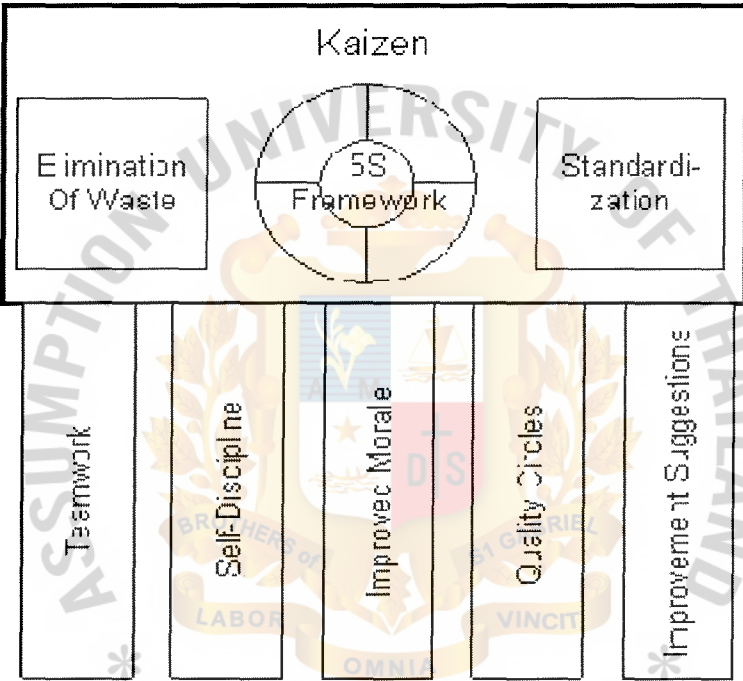
1. Singular verses group Kaizen
2. Everyday verses exceptional occasion Kaizen
3. Process level versus sub process level

2.1.3.1 Singular verses group Kaizen

For the most part in Kaizen, a group approach is utilized; however, another technique called "Teian Kaizen" or individual Kaizen" is likewise embraced. Kaizen, in which the individual representatives uncover change zones in their everyday work exercises and give thoughts/proposals about its change, is known as Teian Kaizen. This strategy concentrates just on the recommendation for change. Rolling out improvement for development requires

endorsement at fitting level. In any case, at Toyota engine organization, the worker recommending the change is the person who dependably makes the change either exclusively or as colleague.

Figure 2.2: Elements of Kaizen



Source: Kaizen Methods, 2011

2.1.3.2 Everyday verses exceptional occasion Kaizen

Quality Circles are delineation of an everyday Kaizen. In this technique, a characteristic work group distinguishes open doors for development by watching work forms. The group meets toward the end of the week for determination of an issue as a kaizen occasion. They attempt to recognize the sources, (underlying drivers) of the issue and give their recommendations to

dispense these sources, accept proposals or execute to take care of the chosen issue. Upgrades in the work process are made amid customary working hours without utilizing after some time. On unique occasion, Kaizen gets ready for the future and after the execution. Change process takes two to five days which it happens at the work site. Regularly, specialists distinguish squander in the procedures and take out this loss as a kaizen occasion.

2.1.3.3 Process level versus sub process level

For the most part, Kaizen influence upgrades at the sub to process level that is at segment level work process. This sub- procedure may incorporate the exercises, obtaining materials from providers, preparing them into valuable items and giving these items to the end client. Gemba Kaizen, alluded to as Point Kaizen, is a case of sub- process level Kaizen. Then again, there is Flow Kaizen or Kaikaku Kaizen, in which change exercises take put as radical change towards improvement at the esteem stream or business level. Basing on the writing audit, Kaizen system can be rundowns as:

Kaizen is a little incremental change toward improvement (Cheser, 1998).

It enables and includes everybody in the association to partake in critical thinking exercises (Imai, 1997).

Cross useful groups are utilized to accomplish these incremental changes (Imai, 1997).

Kaizen enhances techniques or standard method in working for an association through recognizable proof and furthermore, end of waste.

Save cash by concentrating on little changes through association's own specialists and spend the spared cash to assist changes inside the association (Imai, 1986).

Ask recommendations for development from all the representatives of the association.

Never quit attempting to enhance as change has no restrictions.

Kaizen might be executed at process or sub-process level as an everyday change or as a unique kaizen occasion to enhance the quality, process, execution of an association through disposal of waste. It likewise diminishes cost of generation and creates HR of the association.

2.1.4 Explanation of Kaizen Tools & Procedures

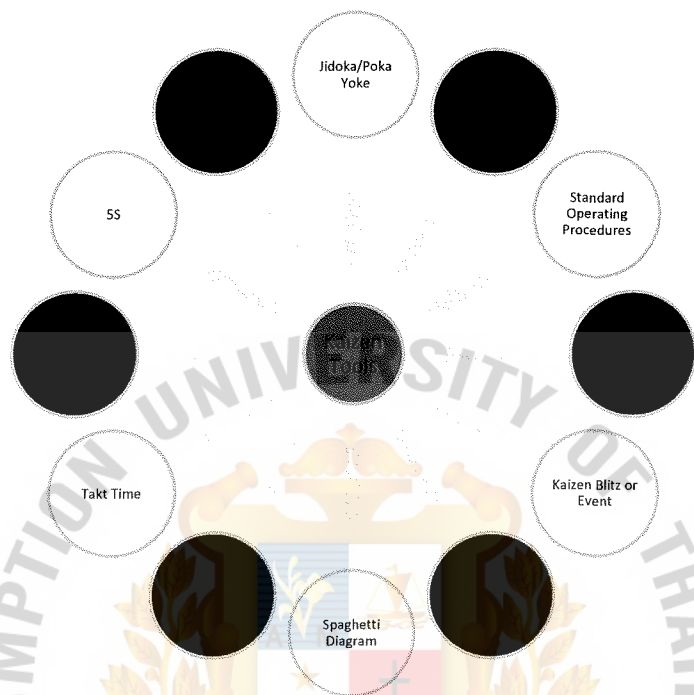
Kaizen professionals utilize different instruments amid kaizen execution significant to the territory of use. A short presentation of these apparatuses is given in the table beneath.

Figure 2.3: Kaizen Umbrella



Source: Imai, 1986

Figure 2.4: Kaizen Tools & Techniques



Source: Singh and Singh, 2009

Figure 2.5: The 7 Wastes



Source: Ohno, 1988

The PDCA (Plan-Do-Check-Action) critical thinking position is utilized to help the coveted practices. It is a very basic structure for utilizing the diverse quality devices which influence the change to process both noticeable and quantifiable while likewise filling in as the fundamental connection amongst upgrades and institutionalized routine work (Berger, 1997). In an article by Thomas (2003), they utilized the PDCA Cycle as a model to delineate the way toward embracing and utilizing persistent quality change at the clinical research site to improve moral, quality benchmarking exercises. Westbrook (1995) likewise utilized the PDCA cycle in cases of change everywhere in Japanese organizations. Comparable as Berger (1997), Thomas (2003) and Westbrook (1995), Shamsuddin and Masjuki (2003) additionally recommended utilizing Deming's PDCA which is an incredible strategy in observing and critical thinking for consistent quality change where any splendid thoughts of people can be obliged.

Kaizen logic grasps three primary standards proposed by Imai (1986) which are process introduction, enhancing and keeping up standard, and individual's introduction. All standards are huge to actualize the kaizen. Imai (1986) expressed that kaizen is process-arranged. Before results can be enhanced, forms must be enhanced, instead of result-introduction where results are everything that matters. Berger (1997) added to what Imai said that the guideline has no less than two down to earth outcomes for the change procedure. To begin with, the administration's principle duty is to invigorate and bolster the exertion of authoritative individuals to enhance forms. Second, process introduction calls for assessing criteria. Besides, Imai (1986) said, "There can be no change where there are no norms" which basically signifies the connection amongst kaizen and keeping up standard techniques for every single real operation (Standard Operating Procedures (SOPs)) (Berger, 1997).

The fundamental Plan-Do-Study-Act (PDSA) cycle was first created by Shewhart and after that by Deming (Naidu, Babu, & Rajendra, 2006). The four stages in the cycle are precisely as expressed. To start with, design deliberately what could possibly be done. Next, carryout the arrangement (do it). Third, contemplate the outcomes. Did the arrangement function as expected

or were the outcomes distinctive at last, follow up on the outcomes by distinguishing what acted as arranged and what did not. Utilizing the information learned, build up an enhanced arrangement and rehash the cycle. The PDCA cycle is a basic adjustment of a more detailed critical thinking technique.

2.1.5 Infrastructure of Kaizen

Legitimately connected, kaizen can enhance quality, decrease cost significantly and meet client's conveyance necessities without critical venture or presentation of new innovation (Imai, 2000). Three noteworthy kaizen exercises institutionalization, the five S's which cover the housekeeping undertakings and the disposal of Muda (squander) add to the effective QCD. Institutionalization, Muda end and the five S's are straightforward and actualized and do not require advanced learning or innovation.

It was comprehended all along the Project that a methodology of leading kaizen exercises at chosen working environment is being observed to be operational and successful. Kaizen exercises were intended to be led first in two (2) show work environments picked by each organization and after that, ventured into vast exercises. Toward the starting, it is watched that a few administrators and administrative staff of the organizations in many cases had a wary state of mind, or a feeling of reservation, against any types of new administrative framework including kaizen. This mentality obstruction can fundamentally impede the presentation of kaizen. Along these lines, the setting up of a set number of model territories or pilot regions inside an organization mitigates this negative brain research and is intended to expand on the underlying accomplishment at the model working environments (Ethiopian kaizen manual, 2011).

2.1.5.1 Standardization

Each time issues or inconsistencies emerge, the administrator must research, distinguish the underlying driver, and update the current guidelines or actualize new ones to avert re events Standardize-do-registration (SDCA). Guidelines turn into a fundamental piece of gemba kaizen and give the premise to day by day change. With current gauges set up and specialists doing their employments as indicated by those measures without any variations from the norm, the procedure is under control. The following stage is to alter business as usual and raise norms to a larger amount. This involves the arrangement do-registration (PDCA) cycle (Imai, 2000). In the two cycles, the last phase of the cycle, demonstration alludes to institutionalizing and settling the occupation. Therefore, institutionalization turns into an indivisible an aspect of everybody's responsibilities.

As indicated by Imai, there are two sorts of guidelines in gemba kaizen. The first, administrative gauges, which are essential for overseeing workers for regulatory reason and which incorporate managerial principles, faculty rules and approaches, sets of responsibilities, rules for getting ready cost accounts, and so on. The other is called operational principles, which need to do with the way individuals carry out a vocation to acknowledge QCD. While administrative benchmarks identify with the inward motivation behind overseeing workers, operational guidelines identify with the outside request to accomplish QCD to fulfill clients.

2.1.5.2 House Keeping – 5S's

The five stages of housekeeping as recognized by Imai seem to be Seiri (sort), Seiton (rectify), Seiso (sparkle), Seikestu (institutionalize) and Shistuke (support). In business, Kaizen incorporates a large number of the segments of Japanese organizations that have been viewed as a piece of their prosperity. Quality circles, robotization, recommendation frameworks, without a moment to spare conveyance, Kanban (see board, as a type of incorporated control of part

supplies) and five S's are altogether included inside the Kaizen arrangement of maintaining a business (Slobodan, 2011).

A "5S" driven work environment upgrades profitability and intensity and cultivates an efficiency culture through a persistent procedure of recognizing, lessening and wiping out MUDA (Japanese for Waste) (Phillip, 2010). The five S's remain for five Japanese words that constitute housekeeping. Today, rehearsing the five S's has progressed toward becoming right around an unquestionable requirement for any organization occupied with any part (Imai, 2000). One can decide the gauge of an organization in five minutes by going to the plant and investigating what goes ahead there, particularly as to Muda (squander) disposal and the five S's.

An absence of the five S's in gemba (genuine place) demonstrates wastefulness: muda, wasteful self-restraint, low resolve, low quality, high cost, and failure to meet conveyance time (Imai, 2000). The physical condition decides one's conduct. Then again, a comparative behavioral example among gathering of individuals characterizes culture. Subsequently, there is a solid connection amongst culture and physical condition. Extrapolating, one can likewise locate a solid connection between the physical condition at the work environment and efficiency (Phillip, 2010).

As indicated by Imai, actualizing a 5S program in an administration industry ought to not just enhance the noticeable condition (the real office condition, which incorporates capacity territories, work areas and file organizers, kitchens and so on.), yet in addition the imperceptible condition. Imai additionally recognizes a portion of the squanders related to benefit segment incorporates: work put on hold, revamps and fragmented data, deficient work or sitting tight for extra data, unfit to be prepared further and furthermore maturing orders.

2.1.5.3 Waste Elimination

Muda implies squander in Japanese; be that as it may, the ramifications of the word incorporate anything or action that does not include esteem (Imai, 2000). All exercises that are not straightforwardly changing the item into the frame wanted by the client can be considered as waste. The three terms Mura (unevenness in work), Muda (all exercises that expand assets without making an incentive for the client.), and Muri (difficult to do) are regularly utilized together (called the three M's) that aggregately portray inefficient practices to be wiped out.

Felix (2012) re-imagined as the seven fatal squanders which are recognized by Taiichi Ohno With regard to (Kaizen Methods, 2011) generation framework (TPS) to be specific: overproduction, holding up, movement, over preparing, stock, transportation, and deformities/blunders.

Similar to squanders in an assembling situation, there are additionally squanders in benefit situations. One of the significant difficulties in benefit associations is building up the capacity to perceive benefit squander. The seven sorts of squanders can be meant an administration setting (Felix, 2012).

As per Imai (2000), of all kaizen exercises, muda disposal is the most effortless to begin, as it is not very hard to distinguish muda once one has gained such ability. Muda disposal ordinarily alludes to ceasing something that we have been doing up to this point, and in this manner, cost little to actualize. For this reasons administration should step up with regards to beginning kaizen with muda end wherever it exists-in gemba, in organization and/or in territory of administration provisioning.

Any successful e-squander administration biological community must address the nearby setting at the center of its outline. There is a need to adjust the push for access to ICTs with the common sense of saddling the resultant e-squander in a way that is feasible as long as possible. Other

basic parts of building up a guide for e-squander administration incorporate distinguishing partners, consistence, authorization, and mindfulness and limit building (ITU, 2012).

2.2 Dimensions of Kaizen

2.2.1 Training and Awareness

Displaying quality training all through an organization, frames some portion of the total quality change process that will be executed by the management. It is the main edge of the aggregate procedure as it gives correspondence and heading to everybody at the foundation. Also, it is receptive to the quality technique that states, "Quality is everybody's duty". In this manner, most fittingly, it is the growing part of the quality capacity (Gul, Jafery, & Rafiq, 2012).

The training plan of a foundation has turned into a developing duty of the quality work. Displaying quality training all through an institution, shapes some portion of the aggregate quality change process that will be implemented by management. It is the main edge of the aggregate procedure as it gives correspondence and bearing to everybody at the establishment (Phillip, 2010).

In kaizen condition, everybody is required to increase extra abilities to enhance the process. Consequently, an exhaustive training program is essential and must be standardized within the whole company. Training in regards of the kaizen concept, guiding standards and tools and methods is endless (Gul, Jafery, & Rafiq, 2012). Personal and team interaction skills must be refined continually. It should start with specific training for management. Once management has the skills to lead the kaizen process, the rest of the institution should be trained to ensure a systematic, integrated, consistent institution-wide effort (Phillip, 2010). Specific job skills training must be provided and constantly updated to reflect the improved process.

2.2.2 Top Management Roles and Commitment

By the method for presentation, top management must be exceptionally watchful and have clear policy proclamation. It should then set up an execution plan and show leadership by rehearsing kaizen methodology inside its own positions (Imai, 2000). Enhancing quality will be hampered if poor correspondence blocks the stream of data to and from workers.

Everyone is responsible for quality, especially the senior management and the CEO; however, only the later can provide the leadership systems to achieve results (Dahlgard, Kristensen, & Kanji, 2007). Kaizen implementation begins with senior management and most important, the CEO's commitment (Besterfield, Besterfield-Michana, Besterfield, & Besterfield-Sacre, 2004). Delegation and rhetoric are not sufficient- involvement is required.

Senior leadership commitment ought to be obsessional, not lip service. It is conceivable to identify genuine responsibility; it shows on the shop floor, in the workplaces, in the hospital center ward – at the purpose of operation. Administration ought to be devoted to the general change of value, not just a one-advance change to an adequate level (Anthony, Jane, & David, 2005).

2.2.3 Companywide Participation and Kaizen

Worker contribution is a one way to deal with enhancing quality and efficiency. Its utilization is attributed for adding to the achievement delighted in by the Japanese on the planet commercial center. Representative inclusion is not substitution for administration nor is it the last word in quality change. It is a way to better meet association's objectives for quality and profitability at all levels of a company (Besterfield, Besterfield-Michana, Besterfield, & Besterfield-Sacre, 2004).

Recommendation framework is designed to furnish the person with the opportunity to be required by contributing to the organization. The majority of the ideas for continuous changes

will originate from the team approach: They should make it simple for employees to recommend improvements, survey them expeditiously and actualize them (Imai, 2000).

2.2.4 Motivation and Empowerment

Oakland (2007) explained worker empowerment as a domain in which individuals have the capacity, the certainty, and the promise to assume the liability and proprietorship to enhance the procedure and start the vital strides to fulfill client necessities inside a very much characterized limits with a specific end goal to accomplish authoritative qualities and objectives.

Individuals like to be perceived, either as a group or individually. A man's sentiment of accomplishment, value to the organization, knowing that the association cares, and having peer acknowledgment possibly more essential than any reward (Dahlgard, Kristensen, & Kanji, 2007).

Empowerment should not be confused with delegation or job enrichment. Delegation refers to distributing and entrusting work to others and job enrichment focuses on expanding the content of individual job (Robbins & Coulter, 2012). Dahlgard, Kristensen and Kanji (2007) stated three conditions necessary for empowered environment, everyone must understand the need for change, the system needs to change to the new paradigm and the organization must enable its employee.

2.2.5 Communication

Everyone needs to be trained in quality awareness and problem solving. It is important to communicate kaizen to the entire organization. Communication is important throughout the implementation stage. Communication is important to create kaizen awareness, interest, desire, and action (Imai, 2000).

Communication is one of the most important supportive dimensions to be considered when implementing kaizen in an institution. From the principles of kaizen, it becomes clear that communication is one of the key success factors in the quality improvement process (Oakland, 2007).

According to Slobodan (2011), with a specific end goal to implement kaizen adequately, there must be individual's orientated correspondence in an organization, which gives a well-disposed climate in which everybody communicates rapidly. Effective communication helps to break down the traditional institutional hierarchy. It additionally supports communication of both great and awful news, with the goal that any kind of news can go from one end of the organization to the next, and through all levels.

2.2.6 Corporate Culture and Positive Mindset

Culture is an essential determinant of the organizational surroundings. Prior to leaving on a quality revolution, an organization must decide if its way of culture offers an environment that is helpful to total quality. If not, the culture must be changed. Institutional culture is a key intended to convey the objectives of the foundation and the suitable conduct in accomplishing those objectives (Irani & Beskese, 2004).

Culture is the result of complex impacts from both inward and outside situations. Culture is therefore not effortlessly versatile in the short time – a reality that best management should remember in mind strategy analysis and decisions. It is consequently basic for top administration to examine the institutional culture and to recognize those variables that have the greatest impact on the way of life of an institution, so that, similarly as on account of strategy, culture can be produced the correct way in the course of time. It requires much understanding, time, assets and the correct mentality by top management (Yousuf, 2010).

Culture in any business might be defined then as the convictions that pervade the company about how business ought to be conducted, and how employees ought to carry on and ought to be dealt

with. Any company needs a vision system that incorporates its managing philosophy, core value and convictions and a purpose. These should be consolidated into a mission, which gives a clear depiction of what things will resemble when they are accomplished (Oakland, 2007).

2.3 Quality Circles/Quality Control Circle

2.3.1 Conception of QCC

Okada (2004) indicated that the QCC is a small gathering of cutting edge administrators who constantly control and enhance the nature of their work, items and administrations; they work self-sufficiently and use quality control ideas, apparatuses and methods. A quality control circle is a small gathering of people inside an association who meet frequently to examine operation and creation issues. Their goal is to pinpoint particular issues, devise conceivable techniques for taking care of these issues, break down the ramifications of these strategies, and prescribe arrangements (Bertrand & Prabhakar, 2002). An option name for quality control circle is quality circle (Anthony et.al, 2005). Intended to address quality issues, as well as such issues as cost, wellbeing, and efficiency, quality circles might be viewed as gathering focused on kaizen exercises (Imai, 2000).

The establishment of a QC Circle is ordinarily completed subsequent to making a few preliminary strides. The QCC idea is generally presented where an all-inclusive quality program, for example, kaizen has been as of now completed, getting to be noticeably one of the parts of such a system. There are to a great extent two examples of appropriation of the QCC idea in an organization: (1) presenting it as a piece of broad quality administration movement and (2) acquainting it earlier with the arrangement of an all-inclusive quality control program. The methods of the establishment change, contingent upon which of the two examples applies (Okada, 2004).

QCs depend on the statutes that people storage rooms to the issues have the clearest comprehension of the issue and that all people are equipped for inventive considering. The foremost challenges in beginning a QC program include the distinction of individuals to communicate and the absence of preparing for critical thinking methods. At first, any QC circle program needs help from a pariah "master," more often than not called facilitator (Bertrand & Prabhakar, 2002).

Okada (2004) stated that the circle is ordinarily made out of three to ten volunteers who originate from a similar workshop and are under a similar administrator. Keeping the gathering small empowers the individuals to take an interest effectively in Circle exercises. Amid gatherings for example, every part has an opportunity to contribute thoughts, while if the gathering is more than ten, it might happen that a part is not ready to contribute a thought in light of absence of time, for the Circle more often than not meets for a hour at most. On the off chance that the gathering is small, the odds are high that individuals can cultivate better relational relations and create cohesiveness. Every part can characterize his part and duties better, influencing him to feel more secure in his occupation relations and see his significance to the gathering; accordingly, his confidence is created. On the off chance that the Circle has under three individuals, it is normally hard to complete things, though in the event that it has more than ten, the gathering ends up plainly clumsy.

2.3.2 Tools of QCC

Okada (2004) expressed that QC Circles require an all-around characterized process for gathering actualities and information that assist them to comprehend circumstances progressively and create countermeasures (actualized through the accompanying PDCA administration cycle or the QC Story) to address issues and keep them from repeating. QC devices and QCC methods, weapons to help QC Circles settle on choices that enable them to legitimately take after the QC Story, are intense as well as objective.

The seven QC apparatuses (stratification, pareto outline, cause and effect diagram, graphs, charts, check sheet, histograms, scattered chart and now and again control diagrams) are utilized to gather, compress, and break down information (quantitative and subjective), though essential procedures, for example, conceptualizing, the why-why approach and liking outlines and used to help individuals to think inventively (Imai, 2000).

All together for the gatherings to qualify as 'quality circles' they "must" utilize a reasonable quality control strategy (technique or apparatus) in their work. The circumstances and end results graph and the Pareto outline are cases of two generally straightforward quality strategies and the utilization of which does not require any exceptional hypothetical instruction rather than the quality method of 'test designs'. This is one motivation behind why these two quality methods are viewed as amazingly powerful in quality circle work. This is the reason these methods are viewed as the most vital in Japan (Dahlgaard, Kristensen, & Kanji, 2007).

2.3.3 Assistance, Progressive Elements and Objections of QCC

However, QCs are currently broadly observed as being to a great extent a disappointment, albeit many delivered a few enhancements in business execution. As an apparatus to impact change in worker state of mind and hierarchical culture, QCs were discovered needing. Best case scenario it appears that they could create in the transient changes in state of mind and conduct; however, this immediately melted away after their curiosity impact wore off (Bertrand & Prabhakar, 2002).

Okada (2004) demonstrated that quality circles are a critical wellspring of employment intrigue; they give a feeling of cooperation and improve the capacity to work with others. He trusts that quality circles increment efficiency, upgrade inspiration and enhance quality. As indicated by Dahlgaard, Kristensen, and Kanji, (2007), embracing quality circles can profit in a few ways. A few increases might be substantial while others might be impalpable, in any case, quality circles will prompt enhanced execution.

Circles can stop when there is no sustaining condition to help them. Distinctive organizations have diverse methods for keeping their Circles enthused, contingent upon their corporate culture. As indicated by Okada, a portion of the elements for fruitful exercises of QCC as: administration acknowledgment plans, upkeep of dynamic QC gatherings, arrangement of supplemental preparing, arrangement of a dynamic supplemental preparing and arrangement of dynamic part for center administration. Instruction is a procedure whereby individuals obtain capacities to help in the accomplishment of hierarchical objectives (Okada, 2004). The facilitators of QCC can recognize the preparation needs of pioneers and individuals when going to gatherings. These necessities must be organized and tended to in like manner by the QC Circle Office.

The disappointment of QCs has been ascribed to many elements. The absolute most regular are poor joining with existing structures, antagonistic center directors, their willful nature and restricted degree, and the issue of keep up them in a time of hierarchical rebuilding and related redundancies (Imai, 2000).

As indicated by Bertrand and Prabhakar (2002), QCs were found to have numerous specialized issues in partition of the recognizable proof of an answer from their usage, their gradualness in conveying comes about, their inclination come up short on things to do, ineffectively created help structures and individuals 'lacking preparation and improvement to help the undertakings expected of them. And also these operational issues, it was frequently the case that circle individuals needed to bear not as much as steady administrative condition. Center directors and managers who felt undermined by fruitful circle exercises responded best case scenario with lack of interest and distrust and at the very least with through and through threatening vibe, once in a while denying hovers with time and assets to do their exercises. Additionally, the issues postured by quality circles being "dashed on the primary systems of authoritative structures, the alleged hierarchical dualism" (Dahlgaard, Kristensen, & Kanji, 2007) postured major issues for circle survival. Not minimum, there were the issues of multifaceted nature bringing about confounded revealing structures and expert level.

2.4 To Innovation from Continuous Improvement

Numerous analysts balance constant change with advancement, consistent change with irregular development, incremental advancement with broken advancement, and abuse with investigation (Imai, 2000). A portion of the advantages of consistent change as specified by Gobesh, Ward, Mohan and David (2009) are activates huge quantities of representatives for the sake of hierarchical change as opposed to expansive scale advancement endeavors that regularly include just chosen specialists, little wins in substantial frameworks can happen in parallel and in addition serially, bringing about the total, in vast quantities of progress endeavors driving thusly to an amplification of results and by being moored in current practices, little wins empower discovering that is established in day by day work schedules precisely the sort of discovering that is destined to be changed into successful practice that is, to be held and standardized.

Malik, Li-Bin, Ye Zhuang and Xiao-Lin (2007) conducted a relative examination of the continuous change process/methods completed in assembling segment of the two nations. Here, outcomes have been gotten from ISO 9001:2000 guaranteed organizations as they were. The example estimate is comprised of 50 Pakistani and 45 Chinese organizations of all levels. Survey being utilized was indistinguishable. The noticeable perspectives being examined here incorporate distinction of level of practices of persistent change, motivational variables, obstructions in fruitful execution, and usage of TQM apparatuses. The outcomes here would be useful in knowing the pattern and methodologies of these two ventures especially ISO affirmed organizations towards arrangement of TQM.

Masaaki Imai contended that consistent change worked best in a moderate development economy, and development was more suited to a quick development economy (Imai, 2000). However, Japan was developing quickly in the 1970s, profiting significantly in the meantime from its persistent change exercises. An option yet all the more persuading clarification is that ordinary consistent change works best when firms are playing make up for lost time; in this way, they know basically the bearing they have to pass by watching those in front of them. Along these lines, nonstop change fits extensive Japanese assembling firms, which for the greater part

of the post- World War II period, were playing get up to speed. At the point when firms are working on the wildernesses of mechanical information, be that as it may, more intermittent advancement is required.

The speed at which companies create and take off new items has turned into an inexorably basic focused issue. Consider that the item life cycles in the PC business were around one year in the center 1980s; by 1997, these were decreased to roughly three months (Pekka & Haari, 2012). Shorter item cycles imply that organizations have less time to recover their speculations and be first to showcase with the correct item, and quality gives major upper hand. In reality, in the new economy, some ventures contend that in this universe of expanding restores, those items and firms that excel, progress promotes after some time because of a progression of positive input circles. This is a universe of victor takes-all business sectors.

Change can be delegated either kaizen or advancement. Kaizen connotes little upgrades because of progressing endeavors. Advancement includes an exceptional change as a consequence of substantial speculation of assets in new innovation or hardware (Imai, 2000). The components of kaizen are maybe most obvious when contrasted with those of radical development. Development can be either incremental or radical where the previous energizes business as usual and the last in a general sense change examples of consistency. From an information point of view, the two sorts of advancement make learning; in any case, they contrast in their "level of novel mechanical substance and consequently, the level of new learning inserted in the development".

2.5 Execution of Continuous Improvement Approach in Fastener Industries

Kumar, Dhingra and Singh (2016) improved the quality arrangement of ten little scale clasp fastener manufacturing through the execution of the Lean-Kaizen approach utilizing the Data Envelopment Analysis (DEA) Charnes Cooper and Rhodes (CCR) display with steady comes back to scale (CRS). Yield expansion is taken as the target capacity to recognize the rate extent

of upgrades. The information is gathered by paying individual visits to the chosen ventures for three sources of information (labor, upkeep, and preparing of workers) and two yields (quality, on-time conveyance) of their quality framework. The DEA CCR display is connected to recognize proficiency scores of the quality framework by taking the most productive industry as a benchmark for whatever is left of the associations. The Lean-Kaizen approach is connected to distinguish squander/non-esteem included exercises in yields of the chose enterprises. Four Kaizen occasions are proposed to dispose of waste/non-esteem included exercises in their quality framework. The information gathered after the Kaizen occasions are additionally broken down by the DEA CCR show. The enhancements in effectiveness scores of the chosen enterprises are introduced as discoveries in this examination paper. Two fastener enterprises ended up plainly 100% productive while whatever remains of the associations detailed 8% to 49% enhancements in their effectiveness scores of the quality framework. The conclusions are made as the Lean-Kaizen utilizing DEA is observed to be a compelling way to deal with the enhancement of the quality arrangement of clasp ventures.

2.6 Conceptual Framework

The segment examined the exact discoveries assessed in the previous section. In view of that, the prerequisites for outlining a model for the kaizen usage are created and at last, a framework for a general model is figured.

Corresponding the change methodology and corporate culture to clients, representatives and partners followed by top administration comprehension and responsibility is the essential movement towards kaizen usage. Organizations need to recognize their size to embrace an approach either sending of companywide approach or choosing a model working environment. Kaizen depends on joint effort of best administration, center supervisors and bleeding edge representatives and proactive and unconstrained investment of workers, and it is fundamentally imperative that the best administration support workers' cooperation, guarantees fitting assignment of expert, and gives representative preparing programs.

As indicated by Imai, kaizen goes a long way past the rationality and practices of value control and quality affirmation. It is a technique that is worried about changing the basic convictions, qualities and societies of the association, saddling the excitement of, and interest by everybody towards a general thought of "right first time".

Employee empowerment and investment involves duty of delegates in an organization and essential initiative identified with plans, targets and techniques of the affiliation. Employees' observed goals, benchmarks and political gauges of their associations were earnestly and inside and out related to laborer motivation and joy towards work. Strengthening realizes influencing specialists that prompts enduring augmentation and definitive improvement.

Correspondence is imperative in organizations moving towards a kaizen reasoning as a result of the change included. Oakland (2007) plainly expressed that the system, changes and culture that are built up inside a foundation because of the kaizen logic, ought to be conveyed obviously and straightforwardly from top management to all representatives and clients.

As there is a nearby association amongst culture and system of an organization, changes in strategy require consistent changes in institutional culture and structures. In spite of the fact that there is no right culture for an establishment, it is as yet imperative that greater and more major ranges of morals and social obligation are incorporated with the way of life of the foundation. Culture is additionally imperative to the individual representative as the establishment frames the social esteem framework in which the individual seeks after the accomplishment of his or her own goals.

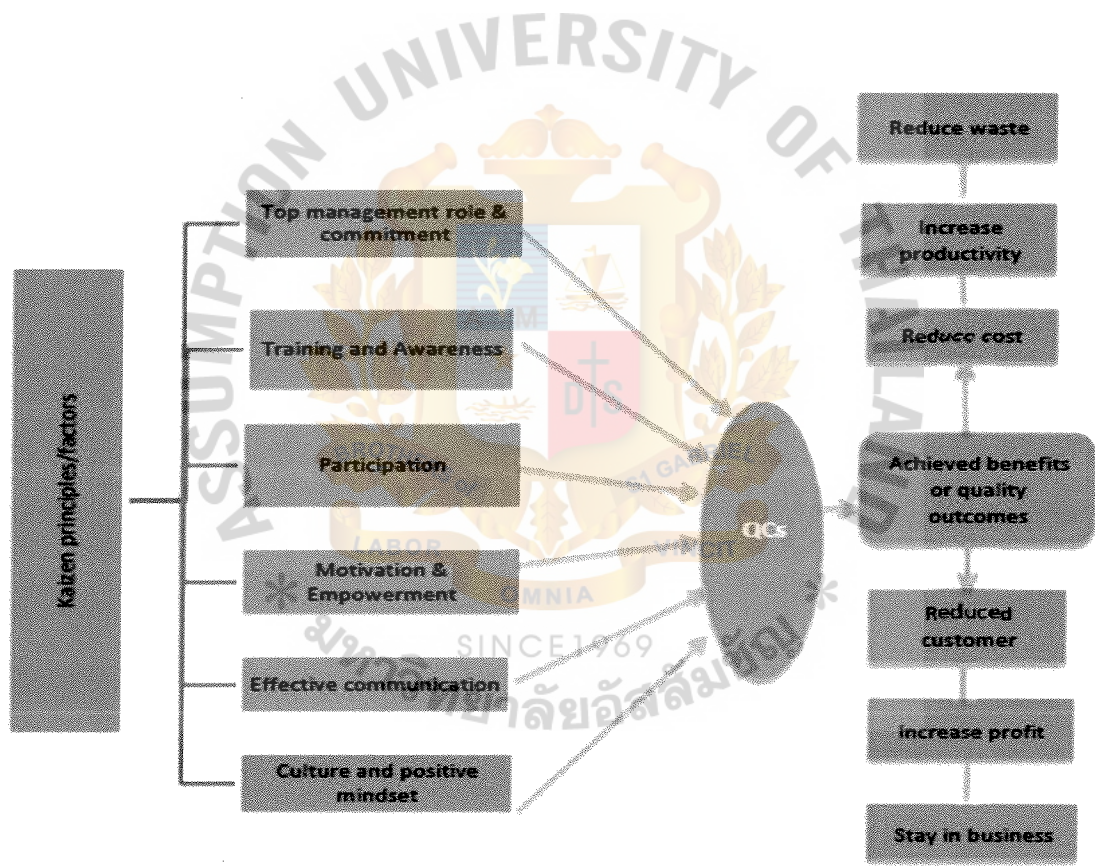
At the point when employees take part in such exercises as housekeeping, muda disposal, and audit of models, they instantly start to see many advantages realized by this kaizen and they are the first to welcome such changes. Through such a procedure, their practices and attitudes start to change.

In acclaiming the significance alright kaizen, Imai expressed that, contemporary administrators frequently attempt to apply advanced devices and innovations to manage issues that can be

unraveled with a rational, minimal effort approach. They have to unlearn the propensity for ever more advanced technologies to take care of regular problem.

Presenting quality control circle such that either as a piece of expansive quality management action or acquainting it earlier with the organization of an all-inclusive quality control program.

Figure 2.6: Factors for effective execution of kaizen



Source: Ethiopian Kaizen Manual, 2011

The above figure is taken from Ethiopian kaizen manual, 2011 attempts to outline the factors that are contributing for persistent change. It demonstrates the connection between the elements and advantages after the usage of continuous change.

2.7 Chapter Summary

This chapter expresses all the relevant literature regarding kaizen and its execution which helps in improving the organizational development. Many of the researchers have talked about continuous improvement practices which have positive effects on the advantages of associations or hierarchical advancement. Benchmarking and key quality arranging are the decisive and critical factors in deciding the accomplishment of authoritative advancement. It is proved by some authors that continuous improvement execution will improve the performance of the organizations. Continuous improvement brings about advancement and cost reduction consequently prompting benefit over the long haul (Sajjad & Amjad, 2011). All in all, this chapter explains the research work of different authors regarding kaizen and its executions in different areas and organizations.



CHAPTER III

RESEARCH METHODOLOGY

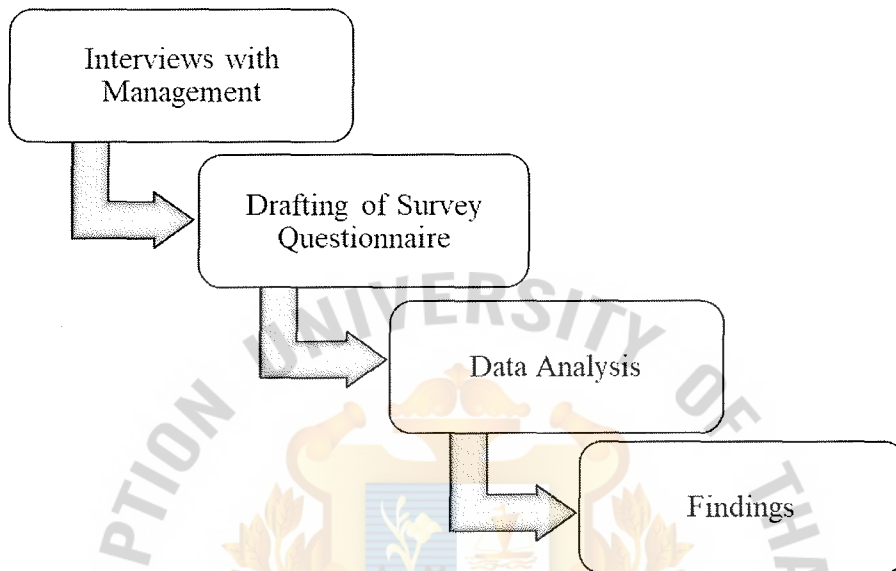
This chapter describes the research methodologies that include research design, research type, sampling techniques and sample, source and tools/instruments of data collection, methods of data analysis and procedures of data collection.

3.1 Research Design

A research design provides a framework for the collection and analysis of data. Considering the stated research questions, the researcher has determined the suitable research design. As indicated by Kothari (2004), a research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. In fact, research design is the conceptual structure within which the research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data.

This research paper used mixed approach comprising both the quantitative and the qualitative approach to research works. The quantitative approach is deployed in terms of quantifying primary data, in the form of descriptive analysis of tabulations. The qualitative approach is deployed to interpret and analyze data attempting to uncover the deeper meaning and significance of respondents' reflection.

Figure 3.1: Research Process Flow Chart



Initially, a general questionnaire for interviews with management was drafted to take an idea about how and when kaizen was implemented on ABC Engineering Pvt., Ltd., how the employees were taken into confidence by the management for the execution of kaizen, what were the achievements after the execution of kaizen and what were the challenges occurred during the execution. After the process of interviews, a survey questionnaire was designed in order to collect responses of participants/employees about the execution of kaizen. In the next step, data was analyzed with the help of frequency distribution and the opinions of employees were gathered through survey and were compared with the opinions of management which they provided during the interview session. Finally, the research was concluded providing some limitations and recommendations for future studies.

3.2 Research Hypothesis

In order to identify the difference of opinions for six different dimensions of kaizen (namely training and awareness, top management role & commitment, employee motivation & empowerment, companywide participation & SQC, corporate culture & positive mindset and communication), among employees (participants) of ABC Engineering Pvt. Ltd. who are working for two divisions (Fasteners Division & Powder Metal Division), possessing four different tiers of qualifications like (Grade 12 & below, 12+2 & diploma, BA/BSc/BE, and MA/MSc/MBA) and four different tiers of experience like (< 3 years, 3-5 years, 6-10 years and >10 years), the researcher has developed 18 different hypothesis mentioned below:

3.2.1 Difference in perception of employees who have different qualification.

The different qualification profiles of people could lead to different perceptions about the studied dimensions of kaizen. The main information of the background is present in the survey questionnaire, such as grade 12 & below, 12+2 & diploma, BA/BSc/BE, and MA/MSc/MBA.

Hypothesis 1: People who are different in qualification perceives training and awareness differently.

Hypothesis 2: People who are different in qualification perceives top management role & commitment differently.

Hypothesis 3: People who are different in qualification perceives employee motivation & empowerment differently.

Hypothesis 4: People who are in different qualification perceives companywide participation & SQC differently.

Hypothesis 5: People who are in different in qualification perceives corporate culture & positive mind-set differently.

Hypothesis 6: People who are in different in qualification perceives communication differently.

3.2.2 Difference in perception of employees who have different experience.

The different experience profiles of people could lead to different perceptions about the studied dimensions of kaizen. The main information of the background is present in the survey questionnaire, such as < 3 years, 3-5 years, 6-10 years, and > 10 years.

Hypothesis 7: People who are different in experience perceives training and awareness differently.

Hypothesis 8: People who are different in experience perceives top management role & commitment differently.

Hypothesis 9: People who are different in experience perceives employee motivation & empowerment differently.

Hypothesis 10: People who are different in experience perceives companywide participation & SQC differently.

Hypothesis 11: People who are different in experience perceives corporate culture & positive mind-set differently.

Hypothesis 12: People who are different in experience perceive communication differently.

3.2.3 Difference in perception of employees working in different divisions.

People working for two different divisions could lead to different perceptions about the studied dimensions of kaizen. The main information of the background is present in the survey questionnaire, such as fasteners division and powder metal division.

Hypothesis 13: People working in different divisions perceives training and awareness differently.

Hypothesis 14: People working in different divisions perceives top management role & commitment differently.

Hypothesis 15: People working in different divisions perceives employee motivation & empowerment differently.

Hypothesis 16: People working in different divisions perceives companywide participation & SQC differently.

Hypothesis 17: People working in different divisions perceives corporate culture & positive mind-set differently.

Hypothesis 18: People working in different divisions perceives communication differently.

3.3 Data Collection Method

3.3.1 Interview

A general questionnaire was designed before conducting interviews with the management of ABC Engineering Pvt., Ltd. and was emailed to the interviewees seven days before the actual day of the interview with the goal that they will be set up on the chosen questions. The main objective of this questionnaire was to gather knowledge about when the company started kaizen execution, why they started kaizen execution, how they implemented kaizen and what they achieve after the execution of kaizen.

Table 3.1: Interview Questionnaire

Questions	References
When! <ul style="list-style-type: none">When did ABC Engineering start the implementation of kaizen philosophy?	Influenced by: Singh and Singh (2009)
Why! <ul style="list-style-type: none">What were the driving forces that urge ABC Engineering to implement kaizen?What were the major activities done before implementing kaizen at ABC Engineering?Did the company ever go through other quality improvement systems before implementing kaizen?	Influenced by: Singh and Singh (2009)

<p>How!</p> <ul style="list-style-type: none"> • How did the company communicate with the employees on the implementation of kaizen? • How did the employees react to the implementation of kaizen? • What attempts did the management of ABC Engineering make with regard to creating positive mind-set among employees to internalize kaizen philosophy? • Did the employees take training on kaizen and its implementation? • How many quality circles/council teams were established in the company i.e. both corporate and region? • How did the management of ABC Engineering demonstrate its commitment to the establishment and persistence of kaizen culture? • Do all working units/sections/departments/divisions/ have established operational standards so that their progress can be measured in the continuous improvement scope? • To what extent does the existing system/culture allow every employee to be involved in the improvement of quality and productivity? • Do you work with any national/international organizations working on kaizen to assist the company achieve its objectives? 	<p>Influenced by:</p> <p>Singh and Singh (2009)</p>
<p>What!</p> <ul style="list-style-type: none"> • What are the improvements achieved after implementing kaizen process at ABC Engineering? • Does the implementation of kaizen in ABC Engineering result in organizational success in terms of achieving its vision, mission as well as prime purpose of kaizen implementation? • What challenges did the company encounter in implementing kaizen and sustain as corporate culture? • What suggestion do you provide for effective implementation of kaizen? • What improvements do you get after the implementation of kaizen? 	<p>Influenced by:</p> <p>Singh and Singh (2009)</p>

<ul style="list-style-type: none"> • What are the major key performance indicators (KPI) regarding product/manufacturing improvement in engineering sector? • What major challenges did you face in the implementation of kaizen? • What do you recommend to overcome these predicaments that you have mentioned? 	
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3.3.2 Questionnaire

After conducting the interviews, a survey questionnaire was drafted focused on six aspects of kaizen implementation namely: Training and Awareness, Top Management Role, Company Wide Participation & SQC, Employee Motivation and Empowerment, Communication and Corporate Culture & Positive Mind-set. The importance of which have been separately studied by researchers mentioned below.

Table 3.2: Survey Questionnaire with References

Questions	References
Training and Awareness <ul style="list-style-type: none"> • I know my company’s vision- mission statement, core values strategic goals and objectives. • The company formally announced the launching of kaizen philosophy to all employees. • Training has been delivered on the methodologies of kaizen implementation (QCs, 5s, waste elimination, problem solving). • The training delivered enables me understand kaizen methodology and effectively apply to improve my working standards. • There is continuous training program with regard to kaizen methodology as well as job specific training that can improve my productivity. 	Influenced by: Gul, Jafery and Rafiq (2012) Philip (2010)

<p>Top Management Role and Commitment</p> <ul style="list-style-type: none"> • The management is committed to the implementation of kaizen methodology in the company by creating a culture of continuous improvement of quality. • Top management (respective CEOs) owns and strives for the implementation of kaizen. • The company management is committed to providing me with the necessary tools, adequate working space and appropriate equipment to perform my duties effectively. • Top management is responsive in providing feedback on escalated issues raised in Standard Quality Circles meeting. 	<p>Influenced by:</p> <p>Imai (2000)</p> <p>Anthony, Jane and David (2005)</p>
<p>Employee Motivation and Empowerment</p> <ul style="list-style-type: none"> • I generally like to schedule my own work and to make job-related decisions with a minimum of supervision. • There exists proper and fair way of motivating employees for their achievement in terms practicing kaizen implementation. • Standard quality circles are empowered in resolving problems and adopting suggestions provided. • I am involved in decision making that affects my work. • Implementation of kaizen in ABC Engineering Pvt., Ltd has increased my productivity and motivation towards my work. 	<p>Influenced by:</p> <p>Oakland (2007)</p> <p>Dahlgaard, Kristensen and Kanji (2007)</p>
<p>Companywide Participation and Standard Quality Circles</p> <ul style="list-style-type: none"> • Every individual starting from the staff to the extent of top management including the CEO is involved in the implementation of kaizen in terms of continuous improvement, problem solving 5s, waste elimination. • I am involved in identifying the improvement areas in my workplace • I am involved in identifying the causes of problem and providing solution for the problems. • Employee suggestions and recommendations are appreciated and 	<p>Influenced by:</p> <p>Besterfield, Besterfield-Michana and Besterfield-Sacre (2004)</p> <p>Imai (2000)</p>

<p>implemented by the management.</p> <ul style="list-style-type: none"> • Standard quality circle meeting is conducted regularly. • The management (QC leader) encourages individuals to forward improvement ideas. • Standard quality circle meetings are held with the sense of identifying better opportunities for improvement and problem resolution. 	
<p>Communication</p> <ul style="list-style-type: none"> • The system encourages employees to communicate with the management regarding work challenges they face in attaining their improvement goals. • Action plan integration exists among standard quality circles within/without divisions so that action will be closed according to their schedule. • There exists a clear way of communication both upward (from SQC members to management -escalated issues) and downward (from management to SQC members updates on escalated issues). • There exist formal templates at all levels for reporting achievement and challenges in standard quality circles. • The reporting template are clear to understand and do not create confusions. 	<p>Influenced by:</p> <p>Oakland (2007)</p> <p>Imai (2000)</p>
<p>Corporate Culture And Positive Mind-Set</p> <ul style="list-style-type: none"> • Kaizen becomes the working culture around/in my workplace with positive mentality of continuous improvement. • Members of standard quality circles treat each other with respect. • For instance criticizing ideas rather than individuals. • The existing organizational culture is supportive for practicing kaizen philosophy. • Problems are solved proactively with the sense of urgency. 	<p>Influenced by:</p> <p>Irani and Beskese (2004)</p> <p>Yousuf (2010)</p>

3.4 Sample Size

The research was conducted in ABC Engineering Pvt., Ltd. which is a fasteners manufacturing company with a total population of 690 employees. For this particular research, 552 employees in the divisions of Fasteners Production and Powder Metal were selected. As a matter of fact, ABC Engineering Pvt., Ltd. has initiated its kaizen implementation in these two divisions only, till date. All 14 managers with different level of designations who are leading these two divisions were selected for the pre-survey interviews. The list is presented below:

Table 3.3: Categories of Interviewees

Positions	No.
Managing Director	1
General Managers	2
Deputy General Manager	1
Managers	2
Assistant Managers	5
Deputy Managers	3
Total Interviewees	14

Since the research was conducted on Fasteners and Powder Metal divisions only, Clustered Sampling technique was applied as all 552 respondents (employees) from two divisions of the ABC Engineering Pvt., Ltd. participated in the survey. Out of 552 respondents, 452 were from Fasteners Division and 100 were from Powder Metal Division. Among the 14 managers, two specialized assistants and one specialized deputy manager were hired by ABC Engineering Pvt., Ltd. specifically for training the employees in Fasteners and Powder Metal divisions.

3.5 Data Analysis and Interpretation

Analysis of the data gathered by quantitative method (questionnaire) was performed using analytical tools like bar charts with frequencies (percentages), followed by the clear descriptions in a way that made the report more understandable.

3.5.1 Interview

As interviews were conducted before designing the survey questionnaire to get the point of view to top management about the implementation of kaizen as well as the post implementation of kaizen, the researcher kept the focus on the mentioned aspects of kaizen. Ideas that were collected from the interview which helped in the designing of the survey questionnaire are mentioned below:

- **Training and Awareness:** According to the interview with the Quality and Production managers, before the implementation of kaizen, ABC Engineering Pvt., Ltd. built up a team of individuals from Quality and Production divisions who managed the general management of the quality approach working with the two divisions. With this situation, the quality council began its work by making the lists of employees under every division, to compose them under quality circles by assigning leaders and facilitators with their own particular roles and responsibilities. The head of every division gives an instructional course to the group of people from the Production and Quality divisions. Then this team from Quality and Production divisions provides the training to the workers on the kaizen methodology.
- **Top Management Role and Commitment:** From the interviews with Quality and Production managers, the management is showing its responsibility to the successful execution of kaizen within the organization through involving in the execution of kaizen and empowering the employees in recognizing the areas of change around their working environment. Other than this, there is a monthly meeting led by the Managing Director to talk about the difficulties and prospects and general performance of the organization as

well as the issues connected with kaizen execution and examine on raised issues and give the directions.

- **Employee Motivation and Empowerment:** From the interviews, though motivation program is not implemented in the standard quality circles, it has just started to be executed on the cross cutting quality circles and there is an arrangement to course to the SQCs sooner rather than later. Furthermore, it can be inferred that, however, kaizen has been implemented somewhere in the range of two years previously in the organization, ABC Engineering Pvt., Ltd. does not have legitimate method for motivational and acknowledgment plan staff for their commitment and this can be considered as a source of the irregularity of proactive way of workers towards consistent change mindset.
- **Company Wide Participation and Standard Quality Circle:** From the meeting with the quality and creation directors, they do not agree that all individuals from the organization are included in the practice of kaizen. Huge number of them substantiate their answer in that the majority of their issues raised are escalated, but they do not get any reactions from top management.
- **Communication:** Interview with Quality and Production managers likewise appears that there is an issue with the concerning formats. From this, it can be reasoned that quality circles cannot report their accomplishments and problems as they must be introduced depicting the activities done. Effective communication assets to break the conventional institutional hierarchy. It moreover empowers communication of both good and bad news, with the objective that any sort of news can go from one end of the institution to the next, and through all levels.
- **Corporate Culture and Positive Mindset:** Unfavorable organizational culture prohibits effective implementation of kaizen. This is also backed up by the response from Quality and Production managers that employees are not committed in full participation of kaizen somewhat due to the post lay off survivals syndrome which happened at the

transformation period. The culture of solving problem does not have a nature of proactive and sense of urgency.

3.5.2 Questionnaire

The questionnaire which was designed for post interview consisted of 31 questions in total, which were divided among six different aspects, such as Training and Awareness, Top Management Role and Commitment, Employee Motivation and Commitment, Companywide Participation and Standard Quality Circles, Communication & Corporate Culture and Positive Mindset of kaizen execution. Data gathered through questionnaire was analyzed using bar charts with frequencies (percentages).

3.6 Chapter Summary

This chapter contains the criteria for the methodology of the research. This section depicts the whole scenario about the methodology of this study. It explains the different methods of this research like research design, type of data collected, research procedures, interpretation of the data, sampling technique, sampling size, etc. It also explains about the data analysis by different analytical tools, such as bar charts, ratios with frequencies (percentages).

CHAPTER IV

PRESENTATION AND CRITICAL DISCUSSION OF RESULTS

The chapter presents the information gathered from higher officials (managers) from interview and the data gathered through survey questionnaire. The questionnaire is categorized into two sections: the first part treats the characteristics (demographics) of the respondents and the second part deals with the analysis of the data obtained from the respondents (managers and employees). With regard to questionnaires, 552 copies were distributed among all employees of two divisions and the data obtained from filled questionnaires was organized, tabulated, transcribed and analyzed using Frequency Table to get the findings.

4.1 Demographic Characteristics of the Respondents

Table 4.1: Gender, Work experience and educational background of the Respondents

Sex	Frequency	Percentage	Work Experience	Frequency	Percentage
Male	552	100%	< 3 Years	156	28%
Female	0	0%	3-5 Years	132	24%
Total	552	100%	6-10 Years	96	17%
			> 10 Years	168	30%
			Total	552	100%

Table 4.2: Respondents’ distribution with regard to educational background

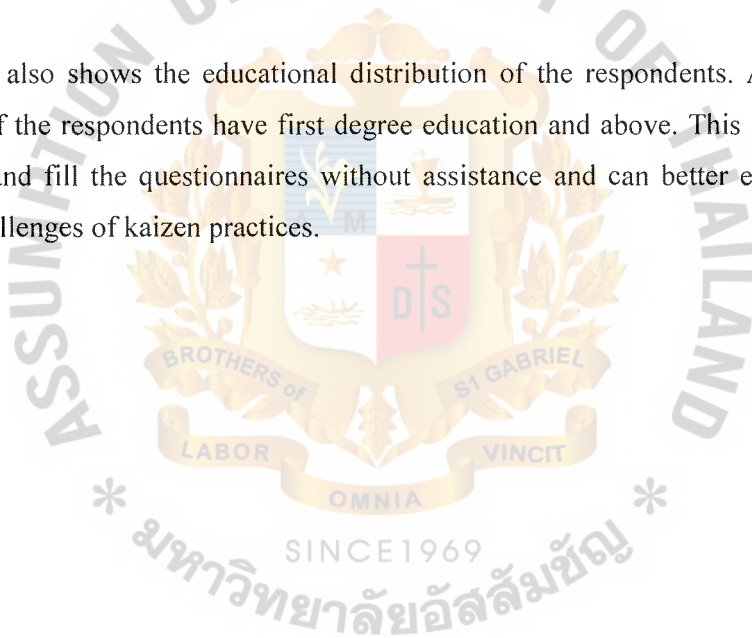
Educational Background	Frequency	Percentage
Grade 12 & Below	201	36%
12 + 2 & Diploma	11	2%
BA/BSc/BE	312	57%
MA/MSc/MBA	28	5%
Total	552	100%

Source: The researcher’s survey result (2018)

As the main source of information, the respondents of this study were ABC Engineering Pvt. Ltd.'s higher managers and employees. The characteristics of the respondents are summarized in the above table.

As shown in the above table, all of the respondents are male which comprise 100% of the sample respondents. The table also shows the work experience of the sample population. Overall, 30% of the respondents have a work experience of more than 10 years. Most of the respondents from both divisions have a work experience of above 5 years which helped the researcher obtain utmost accurate information with the change/improvement obtained from kaizen in comparison with other tools implemented in the company.

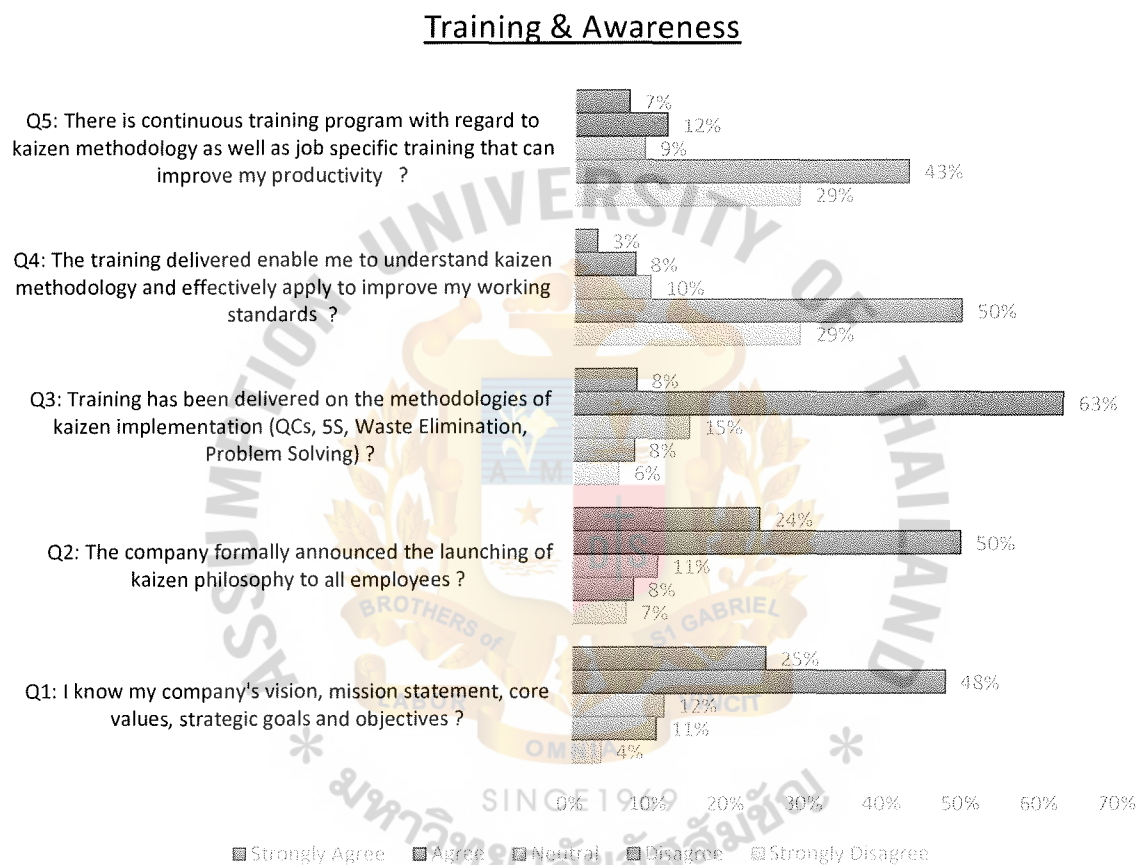
The above table also shows the educational distribution of the respondents. As shown in the table, majority of the respondents have first degree education and above. This implies that they can understand and fill the questionnaires without assistance and can better explain about the practices and challenges of kaizen practices.



4.2 Results and Discussion

4.2.1 Awareness creation, Training and Execution of Kaizen

Figure 4.1: Percentage of respondents on Kaizen Training and Awareness Level



Source: The researcher’s survey result (2018)

This section is aimed at assessing the extent to which staff are aware about the execution of kaizen and degree of training delivered both for job specific enhancement and training on kaizen execution. As it is shown in the chart (Figure 4.1), 73% of the respondents know their company’s vision, mission, core values, strategic goals and objectives although the knowledge is in different level. This implies that employees know where the company is and where it is striving to proceed. More than 71% of the respondents are aware about the company executing kaizen as a

quality improvement system. It is also coined from the Quality & Production Managers of ABC Engineering Pvt., Ltd. that the company publicizes to its employees the execution of kaizen and operationalization of quality council/circles through the company's internal communication, kit-flash info and regular quality newsletter release.

According to Phillip (2010), the message of value change must be imparted to three particular crowds: representatives, clients and partners. To fabricate expectation and eagerness, workers must be invigorated to change to a kaizen domain. Workers cannot be relied upon to be profitable and powerful on the off chance that they do not get exact and important data. Though it is not at its sufficient level, ABC Engineering Pvt., Ltd. has communicated the launching of kaizen practices to its employees.

But the level of training is not enough for staff to fully engage in practicing kaizen principles in their workplace. Seventy-nine percent (79%) of the respondents are not satisfied with the training level given by the company with regards to kaizen execution. Besides this, only 19% of the respondents agree that there is continuous training program on kaizen as well has job related training which most of them are from Enterprise division for the reason associated with, the division has its own on the job training section focused group interview.

Training delivers greater benefits, according to Conney, Terziovski, and Samson (2012), on the off chance that management centers upon the key viability of that training as opposed to just upon its capacity to upgrade representative assignment adequacy. Representative preparing is of more noteworthy incentive to the firm in creating human capital if its influence is intervened by the quality administration framework. On the off chance that firm particular aptitudes are created, it does not just enhance the abilities of individual workers, yet additionally improve the adequacy of the quality management framework. Due to insufficient level of training both in kaizen execution and work related training, staff cannot be able to deliver what is required in terms of bringing continuous quality improvement in their area of duty.

According to the interview with Quality & Production Managers, before the official execution of kaizen, ABC Engineering Pvt., Ltd. established a team of seven individuals from Quality and

Process division. With this circumstance, the Quality council started its activity by revising the list of employees under each division, organized them under quality council/circles by assigning leaders and facilitators with their own specific roles and responsibilities. Leaders are either supervisors or managers according to the specific division's structure and facilitators are either managers or officers. The Quality council conducted a one- day awareness training for standard quality council/circle leaders and facilitators on the fundamentals of kaizen methodology. In turn, the leaders and facilitators offered a one- day training for members of SQC under their supervision. But other than experience sharing with some international companies on kaizen principles and applicability, there was no formal and organized training as responded from the Quality & Production Managers.

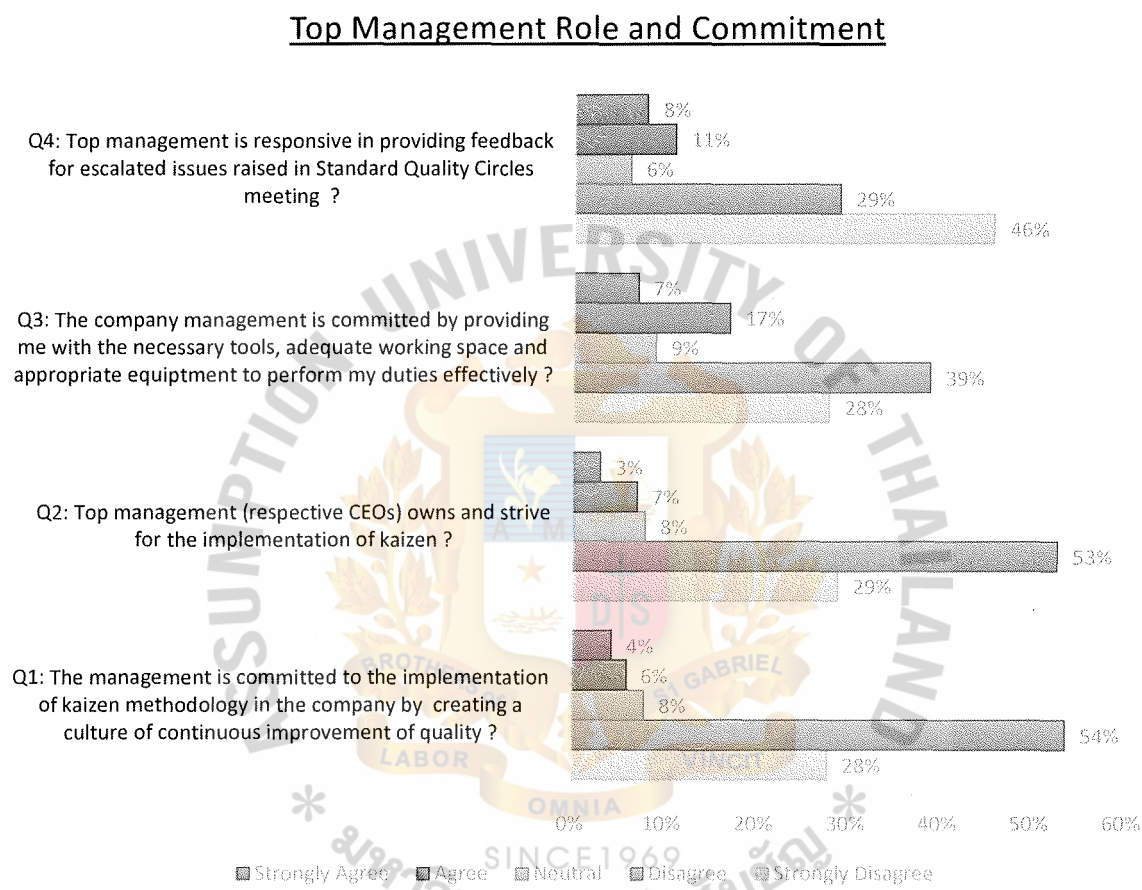
Right after imparting the training, the Quality council in cooperation with Risk Management and Business Continuity department conducted a risk assessment to identify the vulnerability level of employees' types of waste and the company's equipment to a risk. This was part of 5s deployment and waste elimination.

According to Naidu, Babu, and Rajendra, top management commitment and knowledge about kaizen, choosing pilot area to study i.e. model workplace, institutionalization of quality circle and introduction of 5S are preliminary activities which are somewhat practiced in ABC Engineering Pvt., Ltd. with regard to deployment of the 5s and institutionalizing of QCs.

Deming's thirteenth rule additionally underlines that inside a foundation, a program of preparing and self-change ought to be built up; the reason being that all workers ought to consistently gain new learning and aptitudes that will effectively add to create ceaseless change and problem solving forms (Oakland, 2007).

4.2.2 Top Management role and Commitment

Figure 4.2: Percentage of Respondents on Top Management’s Commitment to Kaizen Execution



Source: The researcher’s survey result (2018)

This section identifies the role and commitment of management in the execution of continuous improvement and sustaining kaizen philosophy as corporate culture. From the interview with Quality & Production Managers, the management is showing its commitment to the effective execution of kaizen within the company through involving in the execution of kaizen and encouraging employees in identifying areas of improvement around their workplace. Besides, there is monthly meeting of respective top level hierarchy chaired by the Managing Director to

discuss on challenges and prospects and overall performance of the company as well as the issues related to kaizen execution and discuss on escalated issues and give directions.

Furthermore, the Managing Director of ABC Engineering Pvt., Ltd. expressed his commitment for the execution of continuous improvement of quality making personal visit of offices and workplaces stated on the interview made with Quality & Production Managers. Also, attending events to discuss the problems of service quality with enterprise customers, partners as well as some public wing meetings.

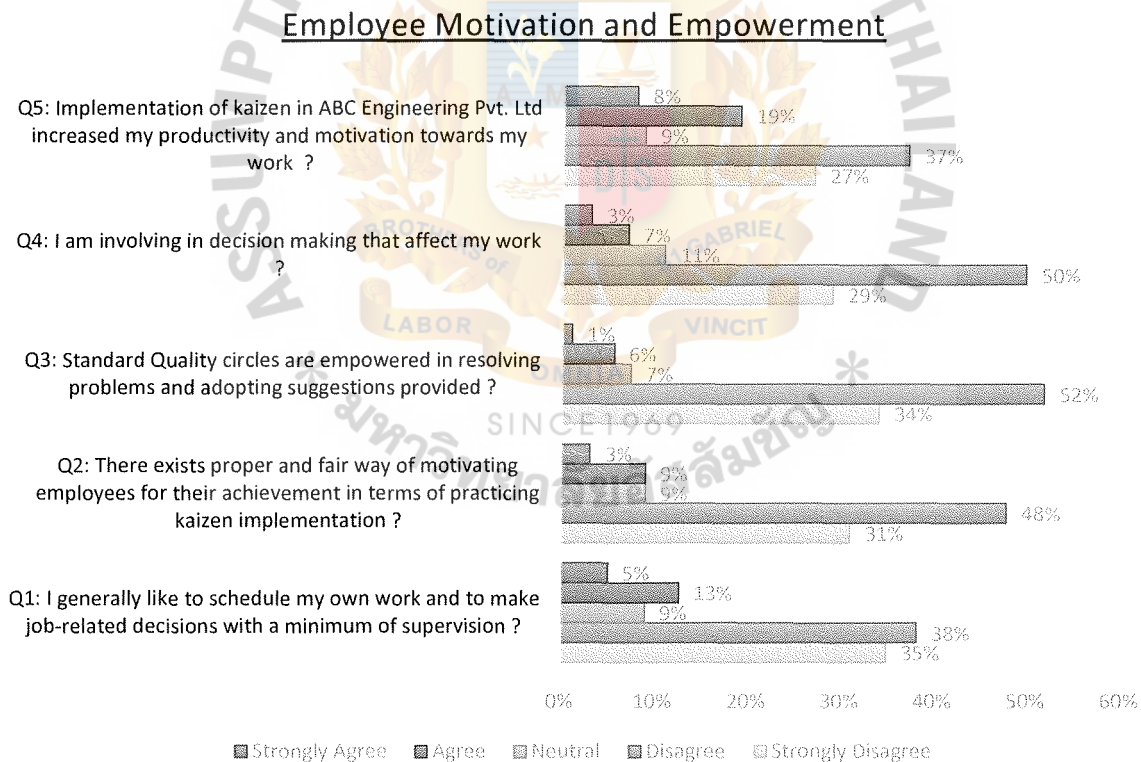
On the other hand more than 80% (Figure 4.2) of the respondents do not agree with the level of commitment of management to the execution of kaizen and sustain it as corporate culture. This is manifested by the inefficiency of the top management in provision of the necessary tools, adequate working place (67%) and delay in response for escalated issues (75%) as shown in the chart above. Mustafa and Bon (2012) described that the top level management leadership is the level of which top administration sets up kaizen destinations and techniques, gives and distributes fundamental assets, contributes in quality change endeavors, and evaluates kaizen execution and execution. From the discussion, the level of management commitment to ingrain kaizen among employees is not sufficient and this resulted in externalizing kaizen to quality and process division and considers quality as one's division specific duty.

According to Yousuf (2010), administration responsibility must be driven by a powerful urge to enhance the quality of all the businesses of an organization. Top administration must not just give a prompt whatever remains of the organization yet in addition, guarantee that the vital choices and moves are made. Just best administration has the inspiration and the ability to impact changes. In advancing hierarchical responsibility, top administration duty will be useful. In a worldwide market, the achievement of association will rely upon the capacities of value pioneer or According to Sajjad and Amjad (2011), administrators regarding cooperation, information, aptitudes and problem solving. (Yousuf, 2010), the explanation behind picking up the dedication of best management to actualize the kaizen program is that management has the duty to help representatives through all the diverse phases of kaizen. Initiative is the essence of progress. Change will not happen without initiative.

Senior Management commitment is required for any initiative to be successful. The management of ABC Engineering Pvt., Ltd lacks commitment owning kaizen and striving to the change being in progress. Besides that issues that have been escalated are not being responded as per their time frame. Instead of providing resolutions for problems, higher officials are obsessed with throwing back them to the quality circle members. The management is not willing to accept and implement suggestions. Leaders do not have a soul of enterprise, unending persistence, persistent correspondence, support.

4.2.3 Employee Motivation and Empowerment

Figure 4.3: Percentage of respondents on Employee Motivation & Empowerment



Source: The researcher’s survey result (2018)

This section briefly assessed one pillar of kaizen i.e. employee motivation and empowerment in bringing about continuous improvement. As Imai (2000) stated, staff motivation and recognition is one pillar of kaizen that can affect the overall organizational effectiveness. Motivational schemes for achievements made are not showing good figures. In the above figure depicted in Figure 4.3, 64% of the respondents stated that the execution of kaizen does not bring the initiation for better achievements as well as motivation towards improving quality of service. The existence of fair and proper way of motivating employees is not acceptable by more than 75% of the respondents.

From the interview, though incentive plan is not implemented in the standard quality circles, it has already begun to be implemented on the cross cutting quality circles and there is a plan to cascade to the SQCs in the near future. And it can be inferred that, although kaizen has been implemented two years before in the company, ABC Engineering Pvt., Ltd. does not have proper way of motivational and recognition plan staff for their contribution and this can be considered as a source for the inconsistency of proactive manner of employees towards continuous improvement mindset.

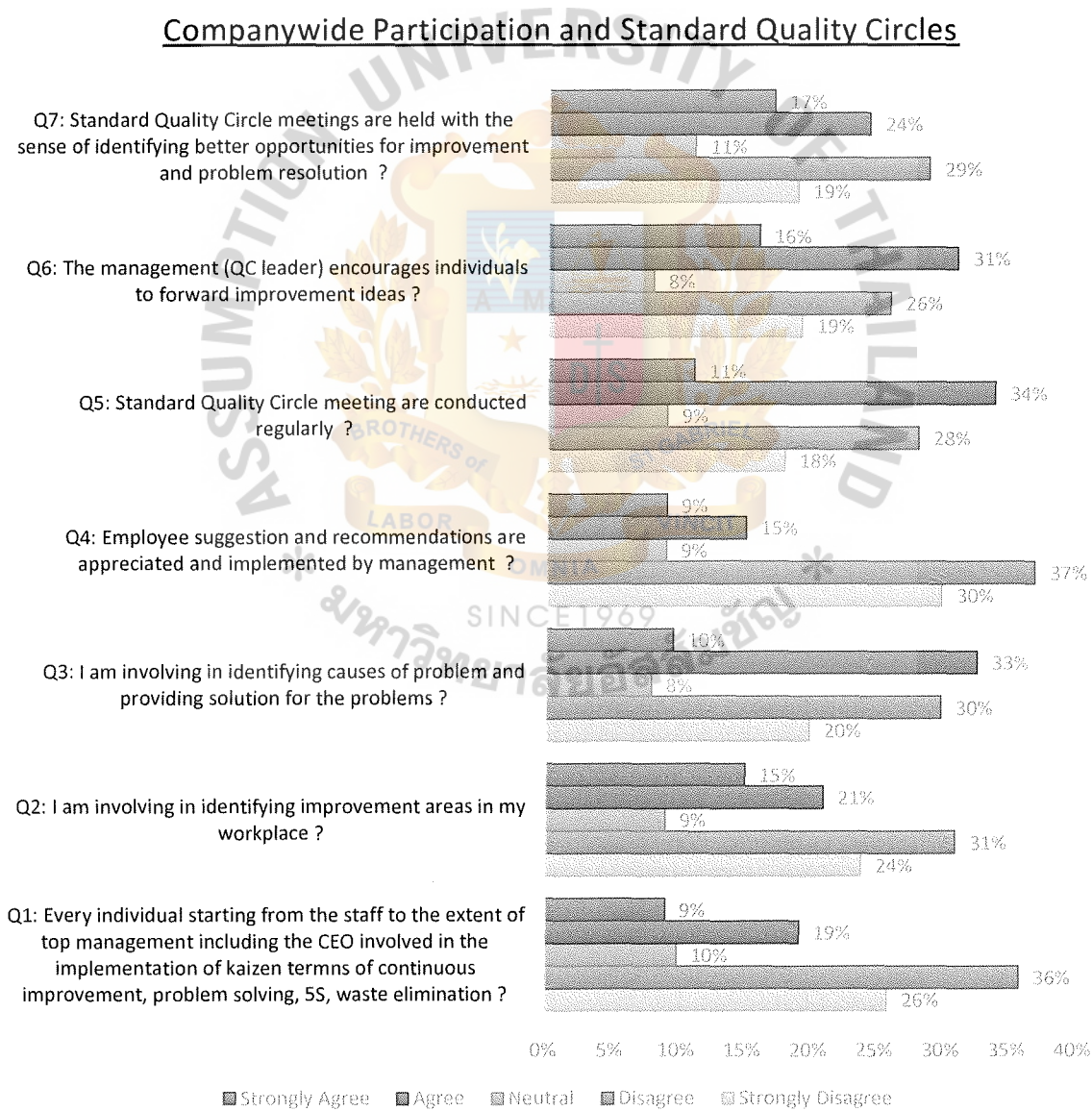
With regard to empowerment, 73% of the respondents have stated that the existing working procedure in the company does not allow them to schedule their own work to make job- related decisions. This implies that for each and every situation, they are expected to consult with their supervisors and which in turn takes elapsed time which has an adverse impact on customer satisfaction as well as improving quality of service with the sense of continuous improvement and sense of urgency. In relation to empowering individuals/QCs to make decision on their work- related issues or executions of suggestion for improving quality of service is less than 20% as shown below.

According to Oakland (2007), effective associations increment responsibility by engaging and including increasingly of their workers in defining designs that shape the business vision. As more individuals comprehend the business and where it is wanted to go, the more they wind up associated with and focused on building up the company's objectives and targets. Seventy-three percent (73%) of the respondents stated that they do not have discretion in setting goals and

schedule their daily works. Lunenburg (2011) expressed that the best execution seems to happen when goals are specific and testing, when they are used to evaluate execution and associated with contribution on occurs, and make duty and affirmation.

4.2.4 Company-wide Participation and Standard Quality Circles

Figure 4.4: Percentage of respondents on Companywide Participation



Source: The researcher's survey result (2018)

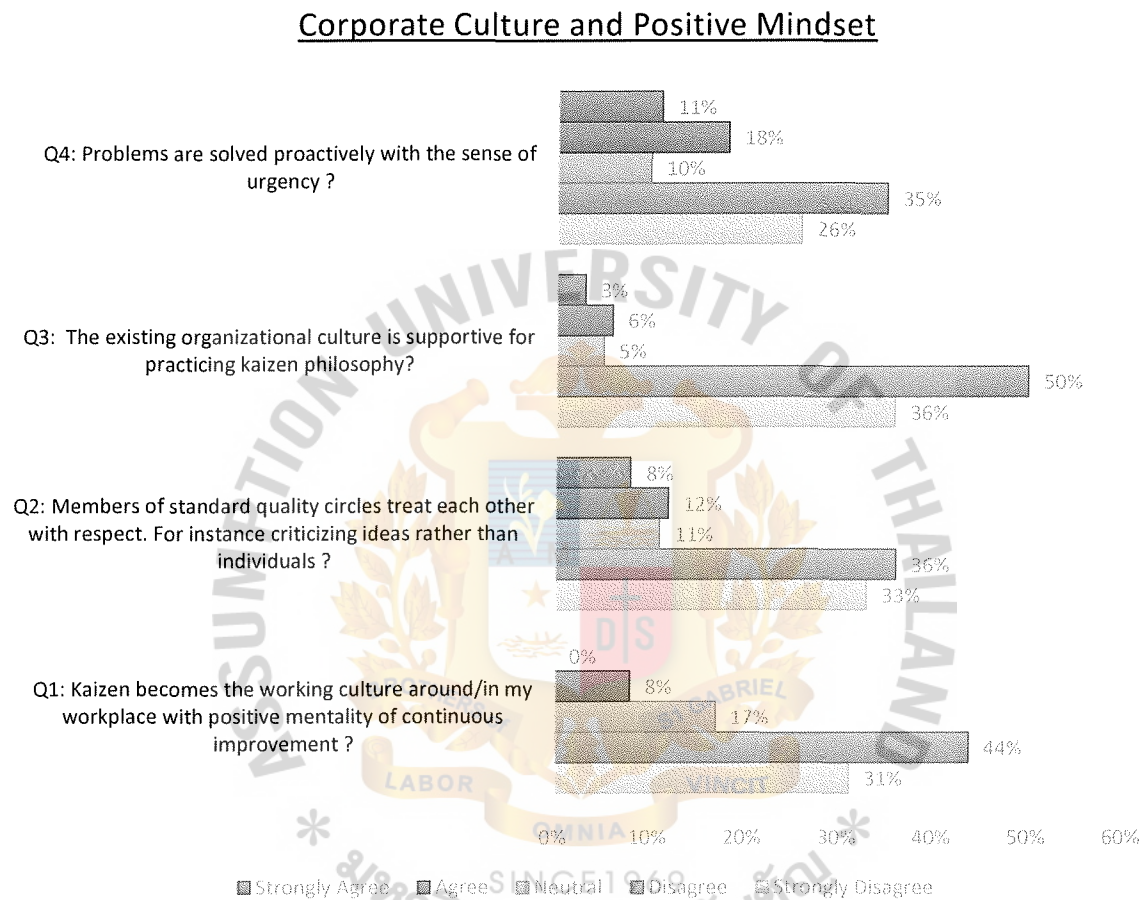
Here, the participation of all members of the company together with standard quality circles towards execution of kaizen in the company is assessed. Respondents are provided with seven statements to assess the participation, execution of suggestions as well as the objectives of standard quality circles meeting in delivering improvement ideas. As it is shown in the chart (Figure 4.4), more than 60% of the respondents do not agree that all members of the company are involved in the practice of kaizen and large number of them substantiate their answer in that most of their issues raised were escalated, but they do not get any responses from the top management. Beside level of integration among standard quality circles as well as with cross cutting quality circle is insignificant. This results among quality circles to develop a culture of report orientation rather than result focused on quality circles meetings and which in turn brought insignificant progress due to unresponsiveness of top managements for issues raised.

As mentioned by (Okada, 2004), meetings constitute one of the critical parts of QC movement, which itself includes a gathering of individuals in a similar workshop who share regular interests and goals. Forty-five percent (45%) of the respondents conduct their meetings on a regular basis; however, as it is depicted above, most of them are not in search of improvement areas or identifying causes of problems. The problem here is that the management is reluctant in implementing those suggestions for improving quality of service.

According to Liker and Meier (2006), a study conducted on Toyota car manufacturer with regard to employees' suggestions, out of the total 75,000 suggestions in 2009, more than 97% were implemented. This shows employees are fully engaged in the continuous improvement encouraged by the management action inculcating their suggestions and implementing them. In the case of the ABC Engineering Pvt., Ltd., although most of the respondents (47%) agree that their SQC leaders encourage them to forward improvement ideas, the management is not appreciating and implementing those ideas as shown in the diagram below. It can be inferred that employees do not forward improvement and problem resolution ideas due to the fact that the management will not practice them and consider the meeting of quality circles as wasting their time.

4.2.5 Corporate Culture and Positive Mindset

Figure 4.5: Percentage of Respondents on Corporate Culture and Positive Mindset

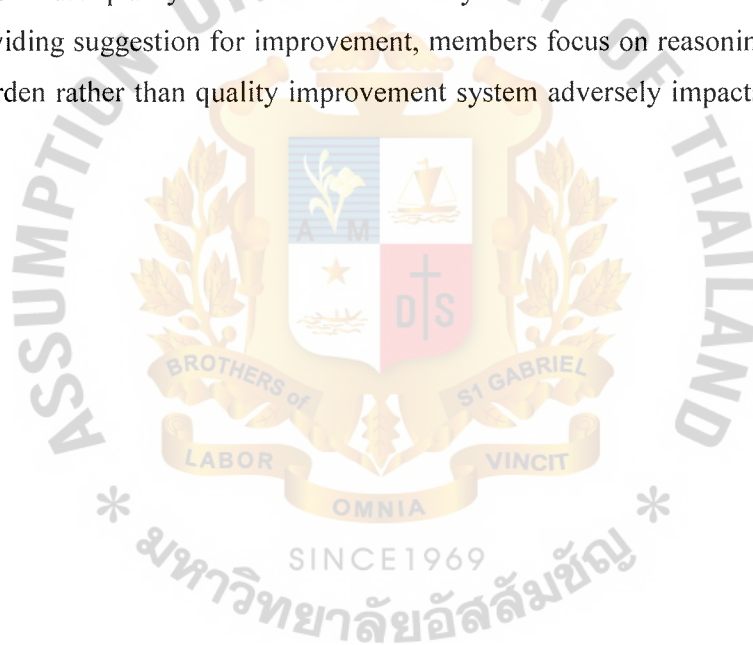


Source: The researcher’s survey result (2018)

In assessing the level of employees’ attitudes towards internalizing and accepting kaizen as corporate culture, 86% of the respondents answered unfavorable organizational culture prohibits effective execution of kaizen. This is also backed by the response from Quality & Production Managers that employees are not committed in full participation of kaizen somewhat due to the post lay off survivals syndrome which happened at the transformation period. The culture of solving problem does not have a nature of proactive and sense of urgency as it is shown in the chart below (Figure 4.6), 61% of the respondents are reactive and waiting for directions from their supervisors in dealing with problems occurred.

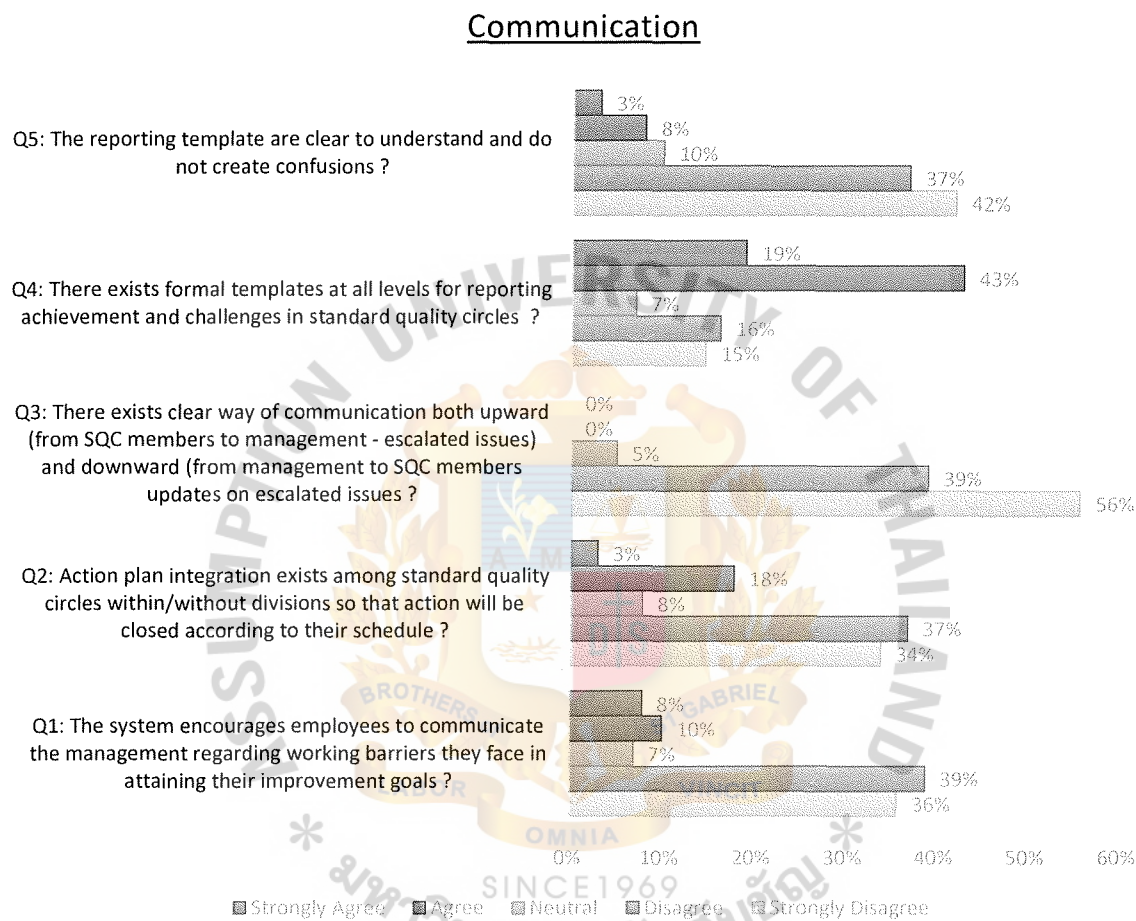
Organizations have different working environments, work attitudes and leadership styles, which influence the execution of the kaizen approach (Phillip, 2010). Culture is an essential determinant of the institutional environment. Before leaving a quality upheaval, a foundation must decide if its way of life offers a situation that is helpful for ceaseless change. If not, the way of life must be changed. Institutional culture is a key that intends to convey the objectives of the establishment and the suitable conduct in accomplishing those objectives.

In contrast to the above point of creating favorable culture for practice, ABC Engineering Pvt., Ltd. is mainly characterized by lack of initiative and commitment among employees and the management to own the quality circle as their own duty and strive for continuous improvement. Rather than providing suggestion for improvement, members focus on reasoning. Taking kaizen as additional burden rather than quality improvement system adversely impacts the practices of kaizen.



4.2.6 Communication

Figure 4.6: Percentage of respondents' on Communication Flow



Source: The researcher’s survey result (2018)

Understanding the contribution of communication among members of the company in the overall execution of kaizen is the objective of this section. The research found out that the existing system is not as such clear to facilitate communication for the reasons like taller span of control in the QCs which can be associated with absence of empowerment, interdependence among divisions. Figure 4.5 shows that 75% of the respondents agree that they are not comfortable with the existing system of communication. As shown in the above figure, 95% of the respondents stated that the communication channel is limited to top down with no upward and diagonal

communication. It is only limited to escalating issues but with no status update or valuable response from the management. A standout amongst the most ground-breaking approaches to make enthusiasm for kaizen is to convey examples of overcoming adversity to workers. Management of ABC Engineering Pvt., Ltd. is lagging behind in sharing success stories of the company like financial information by teaching employees to understand and play the “great game of business”. In addition to this, the company did not bring organizations in engineering sector as benchmarking for comparing their performance and achievement of ABC Engineering Pvt., Ltd. in the execution of kaizen. This implies one of the pillars for effectively practicing kaizen in organizations, communication is lost and results in lack of trust and commitment on sustaining it as a culture.

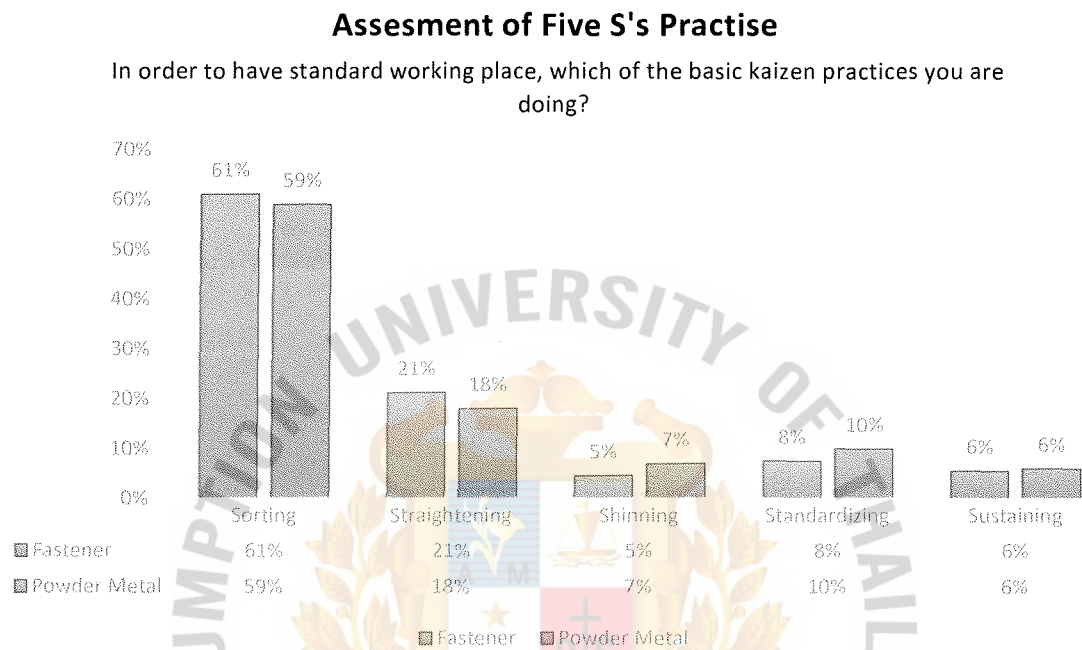
Regarding integration and communication of action plans, 71% of the respondents are not agreeing to the existence of proper communication of action plans integration among divisions and related departments. Most quality masters underscore that quality issues regularly are the aftereffect of poor level or parallel connections inside the association. That is, diverse capacities do not legitimately identify with each other and distinctive workers do not appropriately identify with each other. A standout amongst the clearest signs of kaizen is quality circles. Frequently they deal with issues on horizontal coordination and, now and again, obviously, influence recommendations about how to enhance administrative frameworks, work strategy, and work methodology.

As pointed out by Oakland (2007), two-way correspondence is viewed as both a center administration competency and as a key administration obligation. From the focused group interview, they are not practicing integration of action plans with other concerned standard quality circles.

As shown on Figure 4.2, 62% of the respondents agree that the existence of reporting templates but a majority of them (79%) said they are not clear with some items of the templates. Interview with quality officer also shows there is a problem with regard to templates. From this, it can be concluded that quality circles cannot report their achievements and challenges as it has to be presented portraying the activities done.

4.2.7 Practices of 5S's

Figure 4.7: Percentage of respondent's degree of Five S's deployment



Source: The researcher's survey result (2018)

The aim of this section is to identify the degree of 5S (Sorting, straightening, shining, Standardizing and Sustaining) practices, since these are the foundations of kaizen. As shown in the chart (Figure 4.7), sorting is the predominant activity done in the company. Though there is a little effort (8%) is made towards standardizing work place in the Fastener division and 10% in the Powder Metal division, the practice is very marginal globally. This shows that the company is not bringing visible changes on practicing the 5S's that have great role in the elimination of wastes enhancement of workplace safety as well as motivations of employees from their workplace.

As Imai stated, out of the many benefits of 5S, safety and elimination of waste by making workplace is visible. Some photographs were taken in the Fastener and Powder Metal division,

discloses that 5S is not well practiced in the company at large. It can be concluded the practice of 5S is limited to sorting the items around workplaces.

Figure 4.8: Wastes of Wire Rod before and after 5S Implementation



Source: ABC Engineering Pvt. Ltd.

Interview with the concerned managers specifies that these are the wire rods purchased for the order of Middle East and have some technical defects with regards to its quality and toughness. And it was recommended that these coils should be scrapped, recycled or discarded.

4.2.8 Improvement in Fastener Division

We have been facing issues of screws sorting in different production areas during screws manufacturing especially in making of threads in screws blanks. Lots of efforts have been made to sort out the waste material which is in the form of screws end point being called “shear bits”. Till recent months, the machine workers are using manual riddles to separate these screws end point (shear bits).

The machine operators are continuously complaining for back pain. Therefore, the floor management has taken this issue very seriously and design a motorized riddle for this purpose, which is now being in use on the shop floor very successfully, all machine operators are satisfied with the induction of this motorized riddle.

4.2.8.1 Chrome Plating in Fastener Division

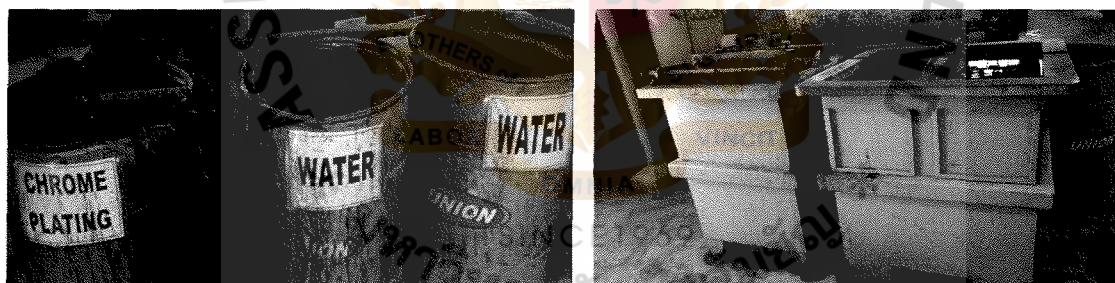
Chrome plating or chromium plating is an electrolytic method of depositing a thin layer of chromium over a metal or plastic object. Chrome plating is mainly used for decorative purpose, giving the substrate an aesthetic look. Chrome plating is less cheap and alternative to nickel plating in terms of providing decoration. Chrome plated surface provide corrosion resistance, increased surface hardness, easy cleaning of parts, etc.

As shown in the pictures below that (before 5S on the left side and after 5S on the right side) water drums were used to do chrome plating, which was an inappropriate way of doing the chrome plating. After the implementation of 5S, drums were replaced by proper systematic chrome plating containers.

Figure 4.9: Images showing the 5S implementation in the Chrome Plating Process

Before 5S

After 5S



Source: ABC Engineering Pvt., Ltd.

4.2.9 Improvement in the Powder Metal Division

After machining work, the outer gear of oil pump of 800cc Suzuki cars were surface grinded from both sides on Surface grinding machine. As the setting time on machine for these gears and because of the process phenomenon (horizontally), the production on the machine becoming

very low and in an eight- hour shift, the output was only 68 pcs, this becoming very alarming that how to improve the production targets to fulfill the requirement of Suzuki motor.

Therefore, a Kaizen was performed on this process to increase the production output. Now the production is using two different machines on which the one side of gear is grinded on surface grinding machine and the other side of the gear is grinded on vertical grinding machine, from this Kaizen save lots of setting time and the output of this oil pump gear increases to about 168 pcs in eight hours.

4.2.10 Major Challenges and Roadblocks on the Implementation of Kaizen

From the questionnaires collected, respondents put the major problems they are facing in practicing kaizen and sustaining it as corporate culture. Besides, some points were also raised by the management as well, like motivational issues. Some of these problems include as follows:

Problem of knowledge gap in the working environment especially technical area. Though technology is upgrading frequently, skill enhancement trainings are not delivered for employees in a planned way. Besides, only one day training has been delivered by the company on kaizen tools which makes it even worse.

Counseling of the workers as well the lower management staff.

Quality circle/council meeting is not held regularly even some standard quality circles do not conduct their meeting. This is mainly due to loose monitoring and control from top management. In addition, these redundancies in evaluation and with some instances meeting create a negative perception among employees in considering kaizen as additional burden rather than improvement quality tool.

Mentality of the staff to be changed.

Absence of proper and fair motivational scheme for practicing kaizen and corrective measures for deviation from the culture, making employees ignorant towards instilling the culture of continuous improvement. Besides, there are no as such inspiring things that remind employees to practice continuous improvement in their daily tasks. This led employees to consider kaizen as additional burden rather than quality improvement.

Quality circle teams are not empowered to make on decisions and this creates a room for escalation of issue for top management. Issues that can even be addressed at section level will stay long time without solutions and make quality of service degraded.

Building a team to monitor the implementation of Kaizen as well as the 5S's.

Issues that are escalated to top management are rolling for more than a year without solution and this is one reason that frustrates the quality circle not to enroll on their duty actively. This in turn created a culture of report oriented meeting.

Routine audits with a time frame.

4.3 Results of Hypotheses

4.3.1 Hypothesis 1: People who are different in qualification perceive training and awareness differently.

Table 4.3: ANOVA Result of Qualification for Training and Awareness for Hypothesis 1

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Qualification	4	12+2 and Diploma, BA/ BSc/ BE, Grade 12 and Below, MBA/MA/MSc			
Number of Observations Read		552			
Number of Observations Used		552			
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.3015	0.1	0.43	0.735
Error	548	129.557	0.236		
Corrected Total	551	129.859			
R-Square	Coeff Var	Root MSE	TA Mean		
0.002	15.738	0.486	3.089		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Qualification	3	0.301	0.1	0.43	0.735

From the ANOVA table, it was observed that the model was insignificant ($p=0.735$), which means that people who are different in qualification perceives training and awareness in the same manner. Therefore, $H_1= \textit{People who are different in qualification perceives training and awareness differently}$ is rejected.

4.3.2 Hypothesis 2: People who are different in qualification perceive top management role & commitment differently.

Table 4.4: ANOVA Result of Qualification for Top Management Role & Commitment for Hypothesis 2

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Qualification	4	12+2 and Diploma, BA/ BSc/ BE, Grade 12 and Below, MBA/MA/MSc			
Number of Observations Read	552				
Number of Observations Used	552				
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.6506973	0.2168991	0.71	0.5489
Error	548	168.4290128	0.3073522		
Corrected Total	551	169.0797101			
R-Square	Coeff Var	Root MSE	TM Mean		
0.003848	26.20079	0.554394	2.115942		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Qualification	3	0.6506973	0.2168991	0.71	0.5489

From the ANOVA table, it was observed that the model was insignificant (p=0.5489), which means that people who are different in qualification perceives top management role & commitment in the same manner. Therefore, $H_2= \textit{People who are different in qualification perceives top management role & commitment differently}$ is rejected.

4.3.3 Hypothesis 3: People who are different in qualification perceive employee motivation & empowerment differently.

Table 4.5: ANOVA Result of Qualification for Employee Motivation & Empowerment for Hypothesis 3

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Qualification	4	12+2 and Diploma, BA/ BSc/ BE, Grade 12 and Below, MBA/MA/MSc			
Number of Observations Read		552			
Number of Observations Used		552			
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.8951842	0.2983947	1.53	0.205
Error	548	106.6943811	0.1946978		
Corrected Total	551	107.5895652			
R-Square	Coeff Var	Root MSE	EM Mean		
0.00832	20.96829	0.441246	2.104348		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Qualification	3	0.89518415	0.29839472	1.53	0.205

From the ANOVA table, it was observed that the model was insignificant ($p=0.205$), which means that people who are different in qualification perceives employee motivation & empowerment in the same manner. Therefore, $H_3=$ *People who are different in qualification perceives employee motivation & empowerment differently* is rejected.

4.3.4 Hypothesis 4: People who are different in qualification perceive companywide participation & standard quality circle differently.

Table 4.6: ANOVA Result of Qualification for Companywide Participation & SQC for Hypothesis 4

The ANOVA Procedure

Class Level Information		
Class	Levels	Values
Qualification	4	12+2 and Diploma, BA/ BSc/ BE, Grade 12 and Below, MBA/MA/MSc

Number of Observations Read	552
Number of Observations Used	552

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.5940256	0.1980085	0.89	0.4468
Error	548	122.1208147	0.2228482		
Corrected Total	551	122.7148403			

R-Square	Coeff Var	Root MSE	CP Mean
0.004841	17.21959	0.472068	2.74146

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Qualification	3	0.59402556	0.19800852	0.89	0.4468

From the ANOVA table, it was observed that the model was insignificant ($p=0.4468$), which means that people who are different in qualification perceives companywide participation & standard quality circles in the same manner. Therefore, $H_1=$ *People who are different in qualification perceives companywide participation & standard quality circles differently* is rejected.

4.3.5 Hypothesis 5: People who are different in qualification perceive corporate culture and positive mind-set differently.

Table 4.7: ANOVA Result of Qualification for Corporate Culture & Positive Mind-set for Hypothesis 5

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Qualification	4	12+2 and Diploma, BA/ BSc/ BE, Grade 12 and Below, MBA/MA/MSc			
Number of Observations Read	552				
Number of Observations Used	552				
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	1.4287252	0.4762417	1.58	0.1936
Error	548	165.3510529	0.3017355		
Corrected Total	551	166.7797781			
R-Square	Coeff Var	Root MSE	CC Mean		
0.008567	25.26275	0.549305	2.174366		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Qualification	3	1.42872521	0.47624174	1.58	0.1936

From the ANOVA table, it was observed that the model was insignificant ($p=0.1936$), which means that people who are different in qualification perceives corporate culture & positive mind-set in the same manner. Therefore, $H_5= \textit{People who are different in qualification perceives corporate culture & positive mind-set differently}$ is rejected.

4.3.6 Hypothesis 6: People who are different in qualification perceive communication differently.

Table 4.8: ANOVA Result of Qualification for Communication for Hypothesis 6

The ANOVA Procedure

Class Level Information		
Class	Levels	Values
Qualification	4	12+2 and Diploma, BA/ BSc/ BE, Grade 12 and Below, MBA/MA/MSc

Number of Observations Read	552
Number of Observations Used	552

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	4.9058304	1.6352768	6.87	0.0002
Error	548	130.5265609	0.2381872		
Corrected Total	551	135.4323913			

R-Square	Coeff Var	Root MSE	CM Mean
0.036223	21.95602	0.488044	2.222826

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Qualification	3	4.9058304	1.6352768	6.87	0.0002

Alpha	0.05
Error Degrees of Freedom	548
Error Mean Square	0.238187
Harmonic Mean of Cell Sizes	29.67279

Number of Means	2	3	4
Critical Range	0.2489	0.262	0.2708

Means with the same letter are not significantly different.				
Duncan Grouping		Mean	N	Qualification
	A	2.3455	11	12+2 and Diploma
	A			
	A	2.3323	201	Grade 12 and Below
	A			
B	A	2.1679	312	BA/ BSc/ BE
B				
B		2	28	MBA/MA/MSc

From the ANOVA table, it was observed that p-value=0.0002 which is less than 0.05 with an f-value of 6.87, therefore H_0 = *People who are different in qualification perceives communication differently* is supported which means that at least one group perceives communication differently at ABC Engineering Pvt. Ltd. Therefore, Duncan Multiple range test was performed to identify

which groups are different in perceiving communication. The results showed that there were three groups i.e. A, BA and B who perceives communication differently.

Group A: People who have qualification of grade 12 & below and 12+2 & diploma, Group BA: People who have qualification of BA/BSc/BE, Group B: People who have qualification of MA/MSc/MBA. Mean score of people who have qualification from below 12 and diploma lies between 2.33-2.34 whereas mean score of people who have qualification of BA/BSc/BE was 2.16 and people who have qualification of MA/MSc/MBA had a mean score of 2.00. According to the mean score, people whose qualification is 12+2 & diploma perceive communication higher than people whose qualification was grade 12 and below or lies between BA/BSc/BE.



4.3.7 Hypothesis 7: People who are different in experience perceive training and awareness differently.

Table 4.9: ANOVA Result of Experience for Training and Awareness for Hypothesis 7

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Experience	4	3-5 Years, 6-10 Years, Above 10 Years, Below 3 Years			

Number of Observations Read	552
Number of Observations Used	552

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.9824129	0.327471	1.39	0.2442
Error	548	128.876645	0.2351764		
Corrected Total	551	129.859058			

R-Square	Coeff Var	Root MSE	TA Mean
0.007565	15.69675	0.48495	3.089493

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience	3	0.98241295	0.32747098	1.39	0.2442

From the ANOVA table, it was observed that the model was insignificant ($p=0.2442$), which means that people who are different in experience perceives training and awareness in the same manner. Therefore, $H_1=$ People who are different in experience perceives training and awareness differently is rejected.

4.3.8 Hypothesis 8: People who are different in experience perceive top management role & commitment differently.

Table 4.10: ANOVA Result of Experience for Top Management Role & Commitment for Hypothesis 8

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Experience	4	3-5 Years, 6-10 Years, Above 10 Years, Below 3 Years			
Number of Observations Read	552				
Number of Observations Used	552				
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.2478701	0.0826234	0.27	0.8483
Error	548	168.83184	0.3080873		
Corrected Total	551	169.07971			
R-Square	Coeff Var	Root MSE	TM Mean		
0.001466	26.2321	0.555056	2.115942		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience	3	0.24787011	0.08262337	0.27	0.8483

From the ANOVA table, it was observed that the model was insignificant (p=0.8483), which means that people who are different in experience perceives top management role & commitment in the same manner. Therefore, *Hs= People who are different in experience perceives top management role & commitment differently* is rejected.

4.3.9 Hypothesis 9: People who are different in experience perceive employee motivation & empowerment differently.

Table 4.11: ANOVA Result of Experience for Employee Motivation & Empowerment for Hypothesis 9

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Experience	4	3-5 Years, 6-10 Years, Above 10 Years, Below 3 Years			
Number of Observations Read	552				
Number of Observations Used	552				
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	1.4350947	0.4783649	2.47	0.0611
Error	548	106.154471	0.1937125		
Corrected Total	551	107.589565			
R-Square	Coeff Var	Root MSE	EM Mean		
0.013339	20.91517	0.440128	2.104348		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience	3	1.43509469	0.4783649	2.47	0.0611

From the ANOVA table, it was observed that the model was insignificant ($p=0.0611$), which means that people who are different in experience perceives employee motivation & empowerment in the same manner. Therefore, $H_0= \textit{People who are different in experience perceives employee motivation & empowerment differently}$ is rejected.

4.3.10 Hypothesis 10: People who are in different in experience perceive company-wide participation & standard quality circle differently.

Table 4.12: ANOVA Result of Experience for Company-Wide Participation & SQC for Hypothesis 10

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Experience	4	3-5 Years, 6-10 Years, Above 10 Years, Below 3 Years			
Number of Observations Read	552				
Number of Observations Used	552				
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.3596504	0.1198835	0.54	0.6571
Error	548	122.35519	0.2232759		
Corrected Total	551	122.71484			
R-Square	Coeff Var	Root MSE	CP Mean		
0.002931	17.2361	0.472521	2.74146		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience	3	0.35965041	0.11988347	0.54	0.6571

From the ANOVA table, it was observed that the model was insignificant ($p=0.6571$), which means that people who are different in experience perceives company-wide participation & standard quality circle in the same manner. Therefore, H_{10} = *People who are different in experience perceives company-wide participation & standard quality circle differently* is rejected.

4.3.11 Hypothesis 11: People who are different in experience perceive corporate culture & positive mind-set differently.

Table 4.13: ANOVA Result of Experience for Corporate Culture & Positive Mind-Set for Hypothesis 11

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Experience	4	3-5 Years, 6-10 Years, Above 10 Years, Below 3 Years			
Number of Observations Read	552				
Number of Observations Used	552				
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	0.3948479	0.131616	0.43	0.7291
Error	548	166.38493	0.3036221		
Corrected Total	551	166.779778			
R-Square	Coeff Var	Root MSE	CC Mean		
0.002367	25.3416	0.551019	2.174366		
Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience	3	0.39484791	0.13161597	0.43	0.7291

From the ANOVA table, it was observed that the model was insignificant ($p=0.7291$), which means that people who are different in experience perceives corporate culture & positive mind-set in the same manner. Therefore, H_{11} = *People who are different in experience perceives corporate culture & positive mind-set differently* is rejected.

4.3.12 Hypothesis 12: People who are different in experience perceive communication differently.

Table 4.14: ANOVA Result of Experience for Communication for Hypothesis 12

The ANOVA Procedure					
Class Level Information					
Class	Levels	Values			
Experience	4	3-5 Years, 6-10 Years, Above 10 Years, Below 3 Years			

Number of Observations Read	552
Number of Observations Used	552

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	3	6.9256568	2.3085523	9.84	<.0001
Error	548	128.506735	0.2345013		
Corrected Total	551	135.432391			

R-Square	Coeff Var	Root MSE	CM Mean
0.051137	21.78548	0.484253	2.222826

Source	DF	Anova SS	Mean Square	F Value	Pr > F
Experience	3	6.92565679	2.30855226	9.84	<.0001

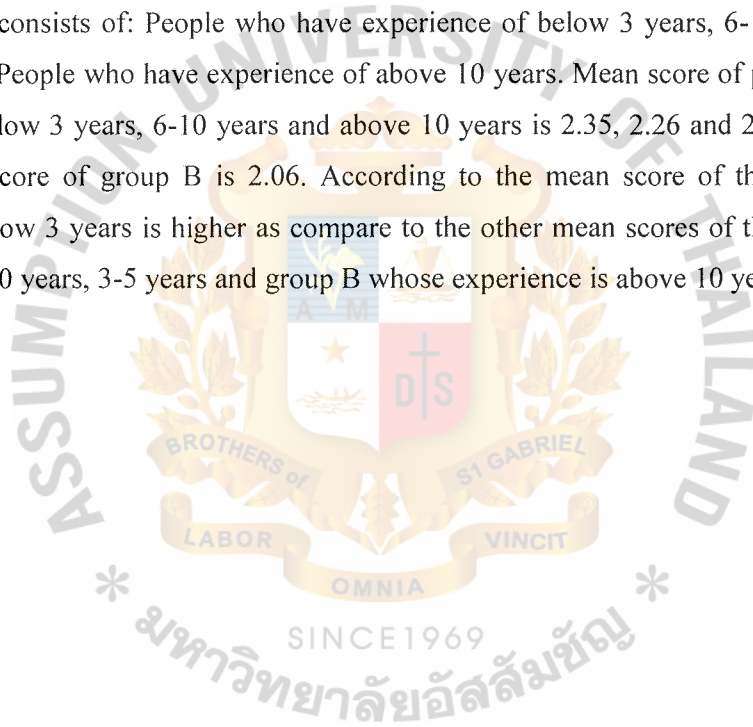
Alpha	0.05
Error Degrees of Freedom	548
Error Mean Square	0.234501
Harmonic Mean of Cell Sizes	131.7737

Number of Means	2	3	4
Critical Range	0.1172	0.1234	0.1275

Means with the same letter are not significantly different.			
Duncan Grouping	Mean	N	Experience
A	2.35385	156	Below 3 Years
A			
A	2.26875	96	6-10 Years
A			
A	2.23182	132	3-5 Years
B	2.06786	168	Above 10 Years

From the ANOVA table, it was observed that $p\text{-value}=0.0001$ which is less than 0.05 with an f -value of 9.84, therefore H_{12} = *People who are different in experience perceives communication differently* is supported which means that at least one group perceives communication differently at ABC Engineering Pvt. Ltd. Therefore, Duncan Multiple range test was performed to identify which groups are different in perceiving communication. The results showed that there were two groups i.e. Group A and Group B who perceives communication differently. There are three sections of group A.

Group A which consists of: People who have experience of below 3 years, 6-10 years and 3-5 years, Group B: People who have experience of above 10 years. Mean score of people who have experience of below 3 years, 6-10 years and above 10 years is 2.35, 2.26 and 2.23 respectively. And the mean score of group B is 2.06. According to the mean score of the people whose experience is below 3 years is higher as compare to the other mean scores of the people whose experience is 6-10 years, 3-5 years and group B whose experience is above 10 years.



4.3.13 Hypothesis 13: People working in different divisions perceive training and awareness differently.

Table 4.15: T-Test Result of Division for Training and Awareness for Hypothesis 13

T-Test						
The TTEST Procedure						
Variable: TA						
Division	N	Mean	Std Dev	Std Err	Minimum	Maximum
Fasteners	452	3.1075	0.4987	0.0235	1.2	4.6
Powder Metal	100	3.008	0.4128	0.0413	2	4
Diff (1-2)		0.0995	0.4844	0.0535		

Division	Method	Mean	95% CL Mean	Std Dev	95% CL Std Dev
Fasteners		3.1075	3.0614 3.1536	0.4987	0.4682 0.5335
Powder Metal		3.008	2.9261 3.0899	0.4128	0.3625 0.4796
Diff (1-2)	Pooled	0.0995	-0.0056 0.2047	0.4844	0.4574 0.5148
Diff (1-2)	Satterthwaite	0.0995	0.00579 0.1933		

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	550	1.86	0.0635
Satterthwaite	Unequal	169.37	2.1	0.0376

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	451	99	1.46	0.0229

From the equality of variance table P-value is 0.0229 that is lesser than 0.05, variances are unequal at 0.0376. And P-value at unequal variances is less than 0.05, thus, Hypothesis is significant and supported. It means people working in different divisions (fasteners and powder metal) perceives training and awareness differently. People who are working in different division’s perceived training and awareness differently. Mean score of fasteners division is 3.1075 and mean score of powder metal is 3.008. Regarding the result of mean score, fasteners people perceive training and awareness higher than powder metal people.

4.3.14 Hypothesis 14: People working in different divisions perceive top management role & commitment differently.

Table 4.16: T-Test Result of Division for Top Management Role and Commitment for Hypothesis 14

T-Test						
The TTEST Procedure						
Variable: TM						
Division	N	Mean	Std Dev	Std Err	Minimum	Maximum
Fasteners	452	2.1272	0.562	0.0264	1	3.5
Powder Metal	100	2.065	0.5157	0.0516	1.25	3.25
Diff (1-2)		0.0622	0.5539	0.0612		

Division	Method	Mean	95% CL Mean	Std Dev	95% CL Std Dev
Fasteners		2.1272	2.0753 2.1792	0.562	0.5276 0.6012
Powder Metal		2.065	1.9627 2.1673	0.5157	0.4528 0.5991
Diff (1-2)	Pooled	0.0622	-0.058 -0.1825	0.5539	0.523 0.5887
Diff (1-2)	Satterthwaite	0.0622	-0.0523 0.1767		

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	550	1.02	0.3099
Satterthwaite	Unequal	155.5	1.07	0.2847

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	451	99	1.19	0.2981

From the equality of variance table P-value is 0.2981 that greater than 0.05, variance are unequal at 0.2847 and F value is 1.19. Accordingly, P-value of unequal variances is higher than 0.05, therefore, Hypothesis is not significant and not supported and it means people who are working in different divisions perceives training and awareness the same.

4.3.15 Hypothesis 15: People working in different divisions perceive employee motivation and empowerment differently.

Table 4.17: T-Test Result of Division for Employee Motivation and Empowerment for Hypothesis 15

T-Test						
The TTEST Procedure						
Variable: EM						
Division	N	Mean	Std Dev	Std Err	Minimum	Maximum
Fasteners	452	2.1208	0.4713	0.0222	1	3.6
Powder Metal	100	2.03	0.2611	0.0261	1.4	2.6
Diff (1-2)		0.0908	0.4409	0.0487		

Division	Method	Mean	95% CL Mean	Std Dev	95% CL Std Dev
Fasteners		2.1208	2.0772 2.1644	0.4713	0.4424 0.5042
Powder Metal		2.03	1.9782 2.0818	0.2611	0.2293 0.3033
Diff (1-2)	Pooled	0.0908	-0.0049 0.1865	0.4409	0.4163 0.4686
Diff (1-2)	Satterthwaite	0.0908	0.0234 0.1582		

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	550	1.86	0.0629
Satterthwaite	Unequal	263.11	2.65	0.0085

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	451	99	3.26	<.0001

From the equality of variance table P-value is 0.0001 that is less than 0.05, variances are unequal at 0.008. P-value at unequal variances is less than 0.05, thus, Hypothesis is significant and supported. It means working in different divisions (fasteners and powder metal) perceives employee motivation and empowerment differently. People who are working in different division’s perceived employee motivation and empowerment differently. Mean score of fasteners division is 2.1208 and mean score of powder metal is 2.03. Regarding the result of mean score, fasteners people perceive employee motivation and empowerment higher than powder metal people.

4.3.16 Hypothesis 16: People working in different divisions perceive company-wide participation & standard quality circle differently.

Table 4.18: T-Test Result of Division for Company-Wide Participation & Standard Quality Circle for Hypothesis 16

T-Test

The TTEST Procedure

Variable: CP

Division	N	Mean	Std Dev	Std Err	Minimum	Maximum
Fasteners	452	2.7446	0.4952	0.0233	1.5714	4.1429
Powder Metal	100	2.7271	0.3494	0.0349	2	3.7143
Diff (1-2)		0.0175	0.4723	0.0522		

Division	Method	Mean	95% CL Mean	Std Dev	95% CL Std Dev
Fasteners		2.7446	2.6989 2.7904	0.4952	0.4649 0.5298
Powder Metal		2.7271	2.6578 2.7965	0.3494	0.3068 0.4059
Diff (1-2)	Pooled	0.0175	-0.085 0.12	0.4723	0.446 0.502
Diff (1-2)	Satterthwaite	0.0175	-0.0653 0.1003		

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	550	0.33	0.7378
Satterthwaite	Unequal	197.97	0.42	0.6776

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	451	99	2.01	<.0001

From the equality of variance table P-value is 0.0001 that is less than 0.05, variances are unequal at 0.6776. P-value at unequal variances is greater than 0.05, thus, Hypothesis is rejected.

4.3.17 Hypothesis 17: People working in different divisions perceives corporate culture & positive mind-set differently.

Table 4.19: T-Test Result of Division for Corporate Culture & Positive Mind-Set for Hypothesis 17

T-Test							
The TTEST Procedure							
Variable: CC							
Division	N	Mean	Std Dev	Std Err	Minimum	Maximum	
Fasteners	452	2.1554	0.5512	0.0259	1	4	
Powder Metal	100	2.26	0.54	0.054	1.25	3.75	
Diff (1-2)		-0.1046	0.5492	0.0607			

Division	Method	Mean	95% CL Mean	Std Dev	95% CL Std Dev		
Fasteners		2.1554	2.1045 2.2064	0.5512	0.5174 0.5897		
Powder Metal		2.26	2.1529 2.3671	0.54	0.4741 0.6273		
Diff (1-2)	Pooled	-0.1046	-0.2238 0.0146	0.5492	0.5186 0.5837		
Diff (1-2)	Satterthwaite	-0.1046	-0.2229 0.0138				

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	550	-1.72	0.0854
Satterthwaite	Unequal	148.18	-1.75	0.0829

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	451	99	1.04	0.8203

From the equality of variance table P-value is 0.8203 that greater than 0.05, variance are unequal at 0.0829 and F value is 1.04. Accordingly, P-value of unequal variances is higher than 0.05, therefore, Hypothesis is not significant and not supported and it means people who are working in different divisions perceives corporate culture & positive mind-set the same.

4.3.18 Hypothesis 18: People working in different divisions perceives communication differently.

Table 4.20: T-Test Result of Division for Communication for Hypothesis 18

T-Test						
The TTEST Procedure						
Variable: CM						
Division	N	Mean	Std Dev	Std Err	Minimum	Maximum
Fasteners	452	2.2659	0.5052	0.0238	1	4
Powder Metal	100	2.028	0.398	0.0398	1.2	3
Diff (1-2)		0.2379	0.4877	0.0539		

Division	Method	Mean	95% CL Mean	Std Dev	95% CL Std Dev
Fasteners		2.2659	2.2192 2.3126	0.5052	0.4743 0.5405
Powder Metal		2.028	1.949 2.107	0.398	0.3494 0.4623
Diff (1-2)	Pooled	0.2379	0.1321 0.3438	0.4877	0.4605 0.5183
Diff (1-2)	Satterthwaite	0.2379	0.1465 0.3294		

Method	Variances	DF	t Value	Pr > t
Pooled	Equal	550	4.41	<.0001
Satterthwaite	Unequal	177.23	5.13	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	451	99	1.61	0.0044

From the equality of variance table P-value is 0.0044 that is less than 0.05, variances are unequal at 0.0001. P-value at unequal variances is less than 0.05, thus, Hypothesis is significant and supported. It means working in different divisions (fasteners and powder metal) perceives communication differently. People who are working in different division’s perceived communication differently. Mean score of fasteners division is 2.2659 and mean score of powder metal is 2.028. Regarding the result of mean score, fasteners people perceive communication higher than powder metal people.

CHAPTER V

SUMMARY FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The chapter presents the major findings of the study providing coherent conclusion and forward possible recommendations.

5.1 Summary of Major Findings

The major findings are organized according to the basic questions: training and awareness on kaizen execution, top management role and commitment, companywide participation, motivation and empowerment, communication and corporate culture with regard to positive mindset. The findings of the hypotheses testing have been presented in chapter 4, which are concluded in Table 5.1 below.

Table 5.1: Conclusion of Hypotheses Testing

Hypothesis	P-Value	Finding
H1: People who are different in qualification perceive training and awareness differently.	p=0.735	Rejected
H2: People who are different in qualification perceive top management role & commitment differently.	p=0.548	Rejected
H3: People who are different in qualification perceive employee motivation & empowerment differently.	p=0.205	Rejected
H4: People who are different in qualification perceive companywide participation & standard quality circle differently.	p=0.446	Rejected
H5: People who are different in qualification perceive corporate	p=0.1936	Rejected

culture and positive mind-set differently.		
H6: People who are different in qualification perceive communication differently.	p=0.0002	Accepted
H7: People who are different in experience perceive training and awareness differently.	p=0.244	Rejected
H8: People who are different in experience perceive top management role & commitment differently.	p=0.848	Rejected
H9: People who are different in experience perceive employee motivation & empowerment differently.	p=0.061	Rejected
H10: People who are in different in experience perceive company-wide participation & standard quality circle differently.	p=0.657	Rejected
H11: People who are different in experience perceive corporate culture & positive mind-set differently.	p=0.729	Rejected
H12: People who are different in experience perceive communication differently.	p=0.000	Accepted
H13: People working in different divisions perceive training and awareness differently.	p=0.037	Accepted
H14: People working in different divisions perceive top management role & commitment differently.	p=0.284	Rejected
H15: People working in different divisions perceive employee motivation and empowerment differently.	p=0.008	Accepted
H16: People working in different divisions perceive company-wide participation & standard quality circle differently.	p=0.677	Accepted

H17: People working in different divisions perceive corporate culture & positive mind-set differently.	p=0.082	Rejected
H18: People working in different divisions perceive communication differently.	p=0.0001	Accepted

Table 5.1 shows the summary of the hypotheses for difference of perception among people who are different in qualification, experience & divisions. The results suggest that for qualification, people only had difference of perception for communication. Similarly, people who were different in experience also perceived communication differently. Furthermore, people who were working in different divisions had different perception for training and awareness, employee’s motivation & empowerment, company-wide participation & standard quality circles and communication. All other dimensions of kaizen were not perceived differently by the employees with different experience, qualification & divisions.

5.1.1 Training and Awareness

Though majority of the respondents agreed that they obtain one day training on basics of kaizen, more than 70 % of them don’t agree that the level of training enable them to practically implement and improve their working standards. Training and education give the essential aptitudes and information – the capacity to get it going. It is a speculation that should be made. ABC Engineering Pvt. Ltd starts to execute kaizen without delivering the necessary and sufficient level of training and that contributed to the ineffectiveness of kaizen practices. From the test of variance, it was observed that people with different qualification and experience did not perceived training and awareness differently, as the results were more or less same (not different) whereas for un-equality of variance which was identified through t-test, it was observed that people from fasteners division rated training and awareness higher (mean=3.107) than people from powder metal division.

5.1.2 Top Management Role and Commitment

Some 85% of the respondents do not agree with the level of top management's commitment in instilling the quality Philosophy Company wide and sustaining it as corporate culture. Management commitment is manifested by empowering individuals/QCs to make job related decision, provide them with the necessary resources, train them, motivate them, and communicate updated information as well as providing them with on time solution for escalated issues. Fiocco and Fleming (2007) pointed out that some kaizen programs have flopped in the execution because of carelessness and hesitance of best administration to designate power and obligation to subordinates. Lack of top management commitment in maintaining kaizen as corporate culture is also one feature observed in ABC Engineering Pvt. Ltd. From the test of variance, it was observed that even people with different qualification, experience and divisions did not had difference of opinion for top management role & commitment.

5.1.3 Employee Motivation and Empowerment

73% of the respondents do not have the autonomy to plan, schedule and control their work and make work related decision. In addition 79% of the respondents are dissatisfied with the existing motivational schemes in ABC Engineering Pvt. Ltd. Absence of fair and equitable reward for suggestions as well as accreditation together with high subjective evaluation contributed for the dissatisfaction of employees to internalize and own kaizen management philosophy. From the test of variance, it was observed that people with different qualification and experience did not perceived employee motivation and empowerment differently, as the results were more or less same (not different) whereas for un-equality of variance which was identified through t-test, it was observed that people from fasteners division rated employee motivation and empowerment higher (mean=2.12) than people from powder metal division.

5.1.4 Companywide Participation and Standard Quality Circle

More than 60% of the respondents stated that companywide participation is not practiced in ABC Engineering Pvt. Ltd. Due to late responses from top management, failure to implement positive suggestion, irregular meetings of standard quality circles/councils a culture firefighting and report oriented approach has been developed. From the test of variance, it was observed that even people with different qualification, experience and divisions did not had difference of opinion for company-wide participation and standard quality circles.

5.1.5 Corporate Culture and Positive Mindset

75% of the respondents stated that kaizen is not working culture around their workplace. Employees are building an attitude of reactive approach to problems rather than solving in a proactive manner. Hierarchical culture can positively affect upper hand, expanded profitability and an organization's performance. Culture of quality in ABC Engineering Pvt. Ltd. isn't worked with respect to building and upgrading trust, inspiration, and genuine employee empowerment through certifiable cooperation, employer stability, and evenhanded pay; collaboration of different structures; preparing and advancement; estimation of value through process and in addition results. Top management of ABC Engineering Pvt. Ltd. didn't relieve the employees from the downsizing syndrome that was occurred in the company some 4 years before which in turn has an adverse impact on creating positive mindset to practice the kaizen philosophy.

From the test of variance, it was observed that people with different qualification and experience did not perceived corporate culture and positive mind-set differently, as the results were more or less same (not different) whereas for un-equality of variance which was identified through t-test, it was observed that people from fasteners division rated corporate culture and positive mind-set higher (mean=2.15) than people from powder metal division.

5.1.6 Communication

More than 90% of the respondents do not agree the existing communication system in ABC Engineering Pvt. Ltd. is supportive for continuous improvement. The accomplishment with which kaizen is built up in an organization to a great extent relies upon the success accomplished with correspondence inside the establishment. Communication system in ABC Engineering Pvt. Ltd. doesn't encourage employees to strive for continuous improvement. Communication problem occur mainly due to limited responsiveness from top management, and unclear reporting template. From the test of variance, it was observed that people with different qualifications, experience and divisions perceived communication differently. People having qualification of 12+2 & diploma and people having experience of below 3 years rated communication higher than other groups. Whereas people working in fastener division rated communication higher (mean= 2.26) than powder metal division.

5.2 Conclusions

The study was conducted to assess the practices and challenges of kaizen implementation as management system in the case of ABC Engineering Pvt. Ltd. It considered six major variables and identified their level of practices and major challenges encountered throughout their execution. Therefore, preparing to the finding deduced from the study, the following conclusions were drawn.

All of the respondents were male in that most of them have working experience above 5 years having an academic status of BA/B.Sc. /B.E. degree. From their working experiences and academic status, it can be concluded that, respondents can tell what sort of improvement did ABC Engineering Pvt. Ltd. obtained through the execution of kaizen.

The first and foremost issue in any management philosophy is inculcating the vision, mission, core values as well as strategic goals among employees which show good status in ABC Engineering Pvt. Ltd. Though ABC Engineering Pvt. Ltd. started the execution of kaizen after

delivering training for employees, it is not sufficient level and on continuous basis which contributes for ineffectiveness of the system. It is noticed that people with different qualifications and experience did not identified training and awareness differently. But on the other hand, the test of un-equality revealed that people of fastener division rated training and awareness higher as compared to the people working in powder metal division.

The degree of top management commitment is not at its desired level. Kaizen is a top level approach that realizes quality mindfulness in every single hierarchical process. For kaizen to be affected completely, it is basic that the best administration ought to be resolved to enable the representatives by designating adequate specialist for them to settle on both individual and aggregate choice. Albeit top management commitment is a vital pillar for practicing and sustaining the culture of kaizen, the management of ABC Engineering Pvt. Ltd. doesn't give due concern for the proper execution and its sustainability. The results of this study and additionally the one revealed in literature bolsters the management of the company has a noteworthy part to play regarding guaranteeing a culture which allows each individual from the organization to be included and add to quality change, as the contribution of workers in recognizing and observing the quality execution requires a decentralized hierarchical structure. This structure grants for advancement as it licenses everyone in an association to look for answer for a specific quality issue. From the test results, it is identified that even people with different qualification, experience and divisions did not have any difference of opinion for top management role & commitment.

Companywide participation is one critical factor in the implementation of new management philosophy like kaizen. It can be concluded from the study, employees are considering kaizen as additional burden thrown by the management rather than service quality improvement system for the reasons mainly attributed to minimal involvement from the Managing Director himself, and ignoring suggestions generated in standard quality circle/council meetings. From the test results, it is identified that even people with different qualification, experience and divisions did not have any difference of opinion for companywide participation & standard quality circles.

Effective communication adds to speedy and powerful execution of tasks while it likewise enhances basic leadership and collaboration. Inefficiency communication system in terms of: delay response from management, one directional communication (top-down), unclear reporting templates are contributing negatively for the ineffective practices of kaizen. Inefficient communication system in ABC Engineering Pvt. Ltd. resulted in poor practices of kaizen which hinders clear flow of information upward, downward as well as lateral. These effects in a bureaucratic nature of administration in the company rather than continuous improvement. From the test of variance, it was noticed that people with different qualifications, experience and divisions distinguished communication differently. People having qualification of 12+2 & diploma and people having experience of below 3 years rated communication higher than other groups. Whereas people working in fastener division rated communication higher than powder metal division.

At some point when associations are considering actualizing empowerment programs, it is extremely basic that the management ought to create and impart definitions obviously. On the off chance that definitions are not unmistakably expressed employees may build up their definitions and it might realize some inevitable uncertainty inside the organization. Standard quality circles in ABC Engineering Pvt. Ltd. are not empowered to make job related decision and this brought delay on actions to be taken and dissatisfaction both on internal and external customers. In addition motivational aspect is not also well practiced in accordance with kaizen principles with regard to both intrinsic and extrinsic factors that in turn negatively affect initiation as well as sustainability of kaizen philosophy among employees. It is noticed that people with different qualifications and experience did not identified employee motivation & empowerment differently. But on the other hand, the test of un-equality revealed that people of fastener division rated employee motivation & empowerment higher as compared to the people working in powder metal division.

It has likewise been appeared in this investigation that kaizen requires a turnaround in corporate culture when contrasted with the old transitional type of administration in which the best administrators' gives order and the workers just obey them. In a full, kaizen programed the authoritative outline is more straightened and there is a common duty amongst directors and

workers and this will in the end settle quality issues speedier and less demanding in light of the fact that everybody will be in charge of their movement. In ABC Engineering Pvt. Ltd. quality culture is not instilled and internalized by employees and quality is considered as if the task of quality and process division. To this end employees take kaizen execution as additional burden and failed to own it as service quality enhancement which causes a decrease in the service quality enhancement. It is noticed that people with different qualifications and experience did not identified corporate culture & positive mind-set differently. But on the other hand, the test of un-equality revealed that people of fastener division rated corporate culture & positive mind-set higher as compared to the people working in powder metal division.

5.3 Theoretical Implications

This research provides useful implications for both academics and practitioners. Thus, the purpose of this study is to assess the level of kaizen practices and challenges the company is facing in achieving its objectives from kaizen implementation. Based on the assessments, the researcher forwarded possible recommendations that will contribute for the proper implementation of kaizen.

Kaizen is a theory that rouses the entire organization with the sense for development. The way of life of looking for nonstop change and include everybody from the most senior chief to the most junior representative. Kaizen is a framework that includes each worker - from upper administration to the cleaning group. Everybody is urged to come up with a little change proposals on a daily basis (Khan, 2011).

There are six supportive dimensions, which should be present to complement and support the primary dimensions of Kaizen as stated by (Suárez-Barraza & Lingham, 2008). These dimensions include: training, commitment from top management participation of all members of the company, appropriate motivational schemes communication and cultural aspect in the company with regard to positive mind set of employees.

For implementing kaizen philosophy effectively in an organization three things must be fulfilled namely: better understanding of the kaizen philosophy, top management commitment and positive mindset (loosely translated from Amharic book of “kaizen” by Getahun, 2014). Khan (2011) also suggest that one of the keys to kaizen success is the close focus that this method brings to the process and the employees within the kaizen team need to be trained in Kaizen logic. Kr (2011) further added: employee empowerment, self- discipline and motivation and recognition are fundamental pillars of kaizen. Two components that develop kaizen: change/improve and progressing coherence. Lacking one of those components would not be thought about kaizen (Kr, 2011).

Displaying quality training all through an organization, frames some portion of the total quality change process that will be executed by the management. It is the main edge of the aggregate procedure as it gives correspondence and heading to everybody at the foundation. Also, it is receptive to the quality technique that states, "Quality is everybody's duty". In this manner, most fittingly, it is the growing part of the quality capacity (Gul, Jafery, & Rafiq, 2012). Results showed that the people having different qualifications & experience did not identified the training level differently. On the other side, the un-equality test results showed that people of fastener division rated the training level high as compared to the people of powder metal division.

Everyone is responsible for quality, especially senior management and the CEO; however, only the later can provide the leadership systems to achieve results (Dahlgaard, Kristensen, & Kanji, 2007). Kaizen implementation begins with senior management and, most important the CEO's commitment (Besterfield, Besterfield-Michana, Besterfield, & Besterfield-Sacre, 2004). Delegation and rhetoric are not sufficient- involvement is required. From the test results, it is showed that even people with different qualification, experience and divisions did not have any difference of opinion for top management role & commitment.

Worker contribution is a one way to deal with enhancing quality and efficiency. Its utilization is attributed for adding to the achievement delighted in by the Japanese on the planet commercial center. Representative inclusion isn't substitution for administration nor is it the last word in

quality change. It is a way to better meet association's objectives for quality and profitability at all levels of a company (Besterfield, Besterfield-Michana, Besterfield, & Besterfield-Sacre, 2004). Results showed that the people having different qualifications & experience did not identified the employee motivation & empowerment differently. On the other side, the un-equality test results showed that people of fastener division rated the employee contribution & empowerment high as compared to the people of powder metal division.

Suggestion system is designed to provide the individual with the opportunity to be involved by contributing to the organizations. Most of the ideas for continuous improvements will come from the team approach: They must make it easy employees to suggest improvements, review them promptly and implement them (Masaki Imai, 2000). From the test results, it is showed that even people with different qualification, experience and divisions did not have any difference of opinion for company-wide participation & standard quality circles.

Oakland (2007) explained worker strengthening as a domain in which individuals have the capacity, the certainty, and the promise to assume the liability and proprietorship to enhance the procedure and start the vital strides to fulfill client necessities inside very much characterized limits with a specific end goal to accomplish authoritative qualities and objectives.

All companies speak with their representatives in some. Communication conveys the association's esteem and value, desires, and bearings; give information about corporate improvements; and permit criticism from all the levels (Besterfield, Besterfield-Michana, Besterfield, & Besterfield-Sacre, 2004). From the test of variance, it was noticed that people with different qualifications, experience and divisions distinguished communication differently.

Making a quality culture inside an association is progressively perceived as one of the essential conditions for the successful execution of kaizen. It requires revealing current hidden culture and inspecting the propriety of the goals keeping in mind the end goal to adopt kaizen. To close the gap between the old and the required new culture one should likewise investigate the new quality change process for accomplishing consumer loyalty (Dahlgaard, Kristensen, & Kanji, 2007). Results showed that the people having different qualifications & experience did not identified the

corporate culture & positive mind-set differently. On the other side, the un-equality test results showed that people of fastener division rated the positive mind-set & corporate culture high as compared to the people of powder metal division.

Thus, the researcher tried to map the factors that are contributing for continuous improvement from the (Ethiopian kaizen manual, 2011). It showed the relation between the factors and benefits obtained after the implementation of continuous improvement.

The study was conducted to assess the methods and challenges of kaizen execution as management system in the case of ABC Engineering Pvt. Ltd. It considered six major variables and identified their level of practices and major challenges encountered throughout their implementation. From the findings, it is concluded that these six variables plays a vital role in the continuous improvement process. It is believed that this research makes a significant contribution to the literature on the implications for a selected industry regarding continuous improvement strategy, which will lead to firm's operational performance.

The findings of the research will have several implications for, and be meaningful to, managers in the global marketplace. This study elaborates the effects of the six variables mentioned above. Practitioners may utilize this knowledge as a guideline to ensure that what are the methods and challenges to implement kaizen in an organization in order to have continuous improvement strategy which can improve the firm performance.

Management would thus be able to utilize this information to viably make a general continuous improvement process that will prompt a company's enhanced operational execution. Vitally, the 'fit' between great techniques and zero error will altogether prompt accomplishment of its objectives. This is especially critical as rivalry and client prerequisites increment, compelling firms to persistently assess and enhance their abilities and procedures.

5.4 Managerial Implications

With the help of frequency distribution (bar charts), it was identified that most of the employees were not satisfied with the studied dimensions of kaizen execution at ABC Engineering Pvt. Ltd. In order to explore how different was the opinions of employees based on their qualifications, experience & divisions, eighteen hypothesis were tested. The findings indicated that difference of perception were found among employees for communication mostly. Whereas difference of opinions for training & awareness, employee motivation & empowerment, corporate culture & positive mind-set & communication was found only among the divisions of ABC Engineering Pvt. Ltd. Therefore, in order to convert this dissatisfaction of employees about the manner of execution of kaizen into positive aspects, ABC Engineering Pvt. Ltd. should:

1. Viable management begins with the improvement of a statement of purpose, trailed by a system, which is converted without action plans down through the company. These, joined with a Kaizen approach, should bring about a quality company, with fulfilled clients and great business comes about. These can be done through:

- ABC Engineering Pvt. Ltd. needs first to revisit its mission statements in a manner of quality with respect to continuous improvement.
- Leaders of ABC Engineering Pvt. Ltd. personal involvement, owning kaizen and acting as role models for a culture of total quality.
- Growing clear and successful techniques and supporting plan for accomplishing the mission and goals. Leaders need to work on maintain current standard and strive to improve those standards by coordinating quality circles and working with together with them.
- Besides to continuous improvement, the company needs to foresee other quality approaches which can be practical together with kaizen.
- Reviewing and improving the management system of ABC Engineering Pvt. Ltd. in which creating an environment where employees build trust on the management by being

responsive for their concerns maintain the participation of all employees through implementing those constructive suggestions.

- Management of ABC Engineering Pvt. Ltd. should communicate, motivate and support employees and encourage effectively their participation. Establishing a platform for the proper integration among quality circles and eliminating those challenges that inhibit the motivation and productivity of employees in practicing continuous improvement like additional evaluation and meeting, unfair motivational schemes.

2. Instruct and create both directors and workers - Managers must comprehend the procedures they oversee and in addition the essential idea of frameworks streamlining. Representative training should focus around the incorporation and suitable utilization of factual devices and problem solving. In addition the training on kaizen should be on a continuous basis including work specific training to enhance employees' capability and caliber.

3. Management of ABC Engineering Pvt. Ltd. needs to assure that the system is geared towards a situation in which all members of the company are involved in the continuous improvement by which everyone participate with a mentality of quality as his/her own job not the task of a specific division. Employees and management should recognize and needs to have a mindset, that each employee is involved in running the business.

4. The company needs to develop effective motivational schemes that energize employees to persistently participate for taking part in continuous improvement. Give appropriate recognition for employees that show outstanding achievement, provide improvement suggestions as well as articulate variable pay based on performance.

5. Staff member can't be relied upon to be gainful and compelling on the off chance that they don't get precise and important information. Communication affects the efficiency and execution of representatives. Successful correspondence builds representatives' level of trust and enhances critical thinking limit. Communication is basic for the whole strengthening concept. Making open doors for cooperation while considering the requirements of representatives are

helpful for successful correspondence. Revisiting the organizational structure of the ABC Engineering Pvt. Ltd. to reduce the tallest chain of command for effective communication as well as re organize the establishment of some standard quality circles in alignment with the specific divisions working condition will improve responsiveness as well as effectiveness. In addition, the company needs to have clear reporting templates that show achievements. Furthermore, ABC Engineering Pvt. Ltd. needs to create platform to integrate action plans and communication among established standard quality circles at corporate level with region as well as with cross cutting quality circles in such a way that doesn't linger problems and facilitate team working with the sense of organizational commitment and synergetic mentality among them.

6. ABC Engineering Pvt. Ltd. need to work on is understand the existing culture and utilizing the information to effectively delineate advances expected to achieve a fruitful change. Adjustments in the way of life of an institution take quite a while and require exceptional consideration from top administration who needs to oblige it as a component of vital management. Social change begins with diagnosing the overarching society of the institution and adjusting this culture to current or proposed methodology. As there is a close connection between culture and technique of an institution, changes in methodology require strong changes in institutional culture and frameworks. Besides, the company needs to decentralize the quality management system to all division/departments to closely follow up their progress. Sitting in office and collecting report weekly/monthly doesn't add value at all. Quality audit need to be deployed in a holistic manner.

7. The company needs to work closely with institutions like PIM (Pakistan Institute of Management) till it is capable to manage the effective implementation of the system. Besides to that ABC Engineering Pvt. Ltd. needs to inculcate the success story of other telecom sectors that has implemented continuous improvement as quality management and take them as benchmark and customize their best practices according to the existing scenario of the company.

8. In eliminating the waste, ABC Engineering Pvt. Ltd. first needs to identify the different source of wastes in the company both from the visible and the invisible working environment that limits its efficiency. Though it was a good progress in assessing the risk areas in the company, it is very much lagging behind in developing risk mitigation plan. For doing this, it

should first deploy the five S's across the company by offering proper training on each step and develop an end to end plan on items and material that needs to be discarded. Everybody, from upper administration to the janitor ought to have 5S as a piece of their individual occupation execution objectives. Incorporate an assessment of 5S execution as a piece of each annual representative audit. Without this level of commitment to 5S, it will wind up auxiliary in significance and will gradually end up disregarded and ineffectual. And standardizing work practices around workplace is also so that everyone can be able to know where he/she stands and where to proceed.

5.5 Roadmap of Kaizen Implementation for ABC Engineering Pvt. Ltd.

Figure 5.5: Suggested Roadmap for Kaizen Implementation

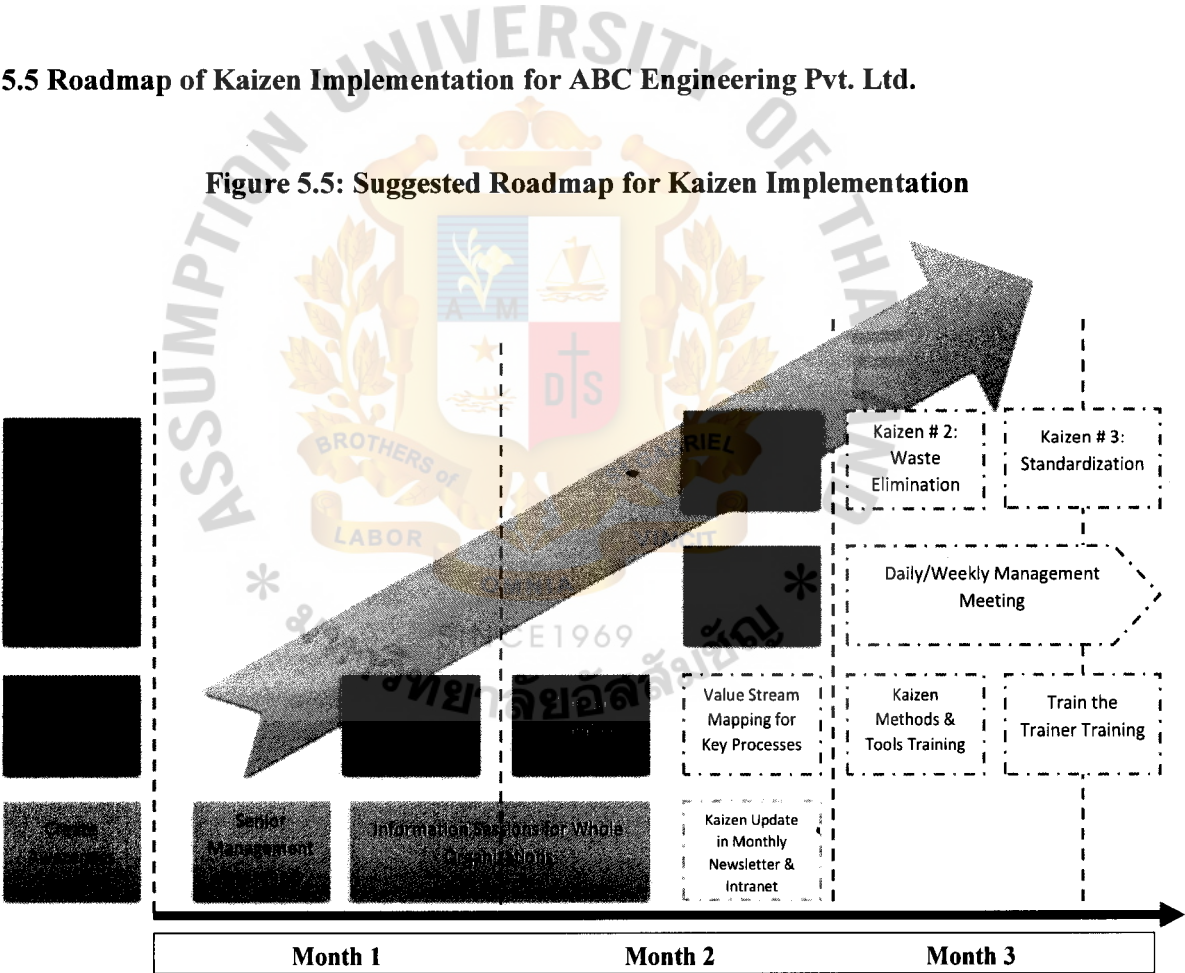


Figure 5.5 depicts the suggested roadmap for kaizen execution for ABC Engineering Pvt. Ltd. To start with, ABC Engineering Pvt. Ltd. has to make sure that the management is well aware of

kaizen as a performance indicator. This can be done by organizing lectures or sessions on kaizen as a continuous improvement. Followed by these sessions, ABC Engineering Pvt. Ltd. should organize training workshops for managers as well as team leaders during the first month. After making sure that the leadership is well aware and trained about kaizen as a continuous improvement, training workshops for employees including lower level staff should proceed during the second month. Furthermore, after training workshops; 5S should be implemented in the respective divisions followed by building a kaizen activity board, value stream mapping and monthly kaizen newsletters.

Proceeding towards the third and last month for the kaizen execution, waste elimination should be applied for reducing the wastes followed by standardization. Standardization plays a vital role in sustaining the kaizen. Long lasting kaizen cannot be achieved without standardization. Daily/Weekly quality council meeting should be held in order to get the updated report for the process improvements and quality issues. Discussed the solutions of the problems occurred in the divisions discovered by the quality circles. Lastly, train the trainer training is necessary for kaizen execution for the trainers which helps in developing the significant methods and skills for assessing the organizational needs that are aligned with directions and business needs.

As it was discovered in the findings that employees of ABC Engineering Pvt. Ltd. were not satisfied with the current implementation process of top management commitment, training and awareness, participation, motivation and empowerment, effective communication and culture and positive mind-set. Therefore, the researcher suggests ABC Engineering Pvt. Ltd. should follow the above mentioned roadmap of kaizen execution to achieve better and positive outcomes.

5.6 Limitations and Recommendation for Future Research

This study has the subsequent limitations:

The data gathered was just in light of the view of the respondents. This information was not backed by other data like annual reports and so forth. In this manner, in future researches, secondary data from annual reports and other authoritative sources may be useful, alongside the perceptual data to get a genuine picture of the performance of an organization.

In this research, the respondents were managers from the two divisions of the sample engineering company. Nonetheless, to minimize favoritism in the responses in future researches, the data must be collected from various levels of the companies, inclusive of the floor workers.

All studies and concepts on supply chain strategy, structure, and execution in this setting were assembled from past researches in Asia, America, and Europe and was implemented in a Pakistani context. Thus, variations may exist in the method for training in the Thai Context.

Samples were drawn from a single industry. Subsequently, the generalizability might be limited in organizations which have an alternate environmental setting.

Results of this research cannot be applied to every organization. Because every organization has a different way of executing work and has different policies to executed that work.

This study was a general exploration of the practices and challenges of kaizen implementation on ABC Engineering Pvt. Ltd which represents manufacturing sector. Further researches could focus at analyzing all the aforementioned factors of kaizen on service sector.

Additional factors like (employees' productivity, zero defects, automation etc.) could also be examined.

References

- Abdolshah, M., & Jahan, A. (2006). How to Use Continuous Improvement Tools in Different Life Periods of Organization, IEEE International Conference on Management of Innovation and Technology. 2, 772-777.
- Adamjee Engineering Pvt. Ltd. (2010). Retrieved from Adamjee Engineering Pvt. Ltd Website: <http://www.adamjee-engg.com/>
- Adams, M., Componation, P., Czarnecki, H., & Schroer, B. J. (1999). "Simulation as a Tool for Continuous Process Improvement", Proceedings of Winter Simulation Conference. 1, 766-773.
- Ahmed, S., Hasan, M. H., & Fen, Y. H. (2005). Performance Measurement and Evaluation in an Innovative Modern Manufacturing System. *Journal of Applied Sciences*, 5(2), 385-401.
- Anthony, B. J., Jane, B., & David, O. (2005). Management Control Theories Issues and Performance. *Palgrave Macmillan, USA*.
- Ashmore, C. (2001). Kaizen and the Art of Motorcycle Manufacture. *Manufacturing Engineer*, 80(5), 220-222.
- Barrick, M. R., & Alexander, R. A. (1987). A review of quality circle efficacy and the existence of positive findings bias. *Personnel Psychology*, 40, 579-592.
- Bassant, J. (2000). "Developing and Sustaining Employee Involving in Continuous Improvement", IEE Seminar, Kaizen: From Understanding to Action (Ref. No. 2000/035). 2, 1-18.
- Berger, A. (1997). Continuous improvement and kaizen: standardization and organizational designs. *Integrated Manufacturing Systems*. 8(2), 110-117.
- Bertrand, H. L., & Prabhakar, G. M. (2002). Quality Control and Management. *Prentice Hall*.
- Besterfield, D. H., Besterfield-Michana, C., Besterfield, G. H., & Besterfield-Sacre, M. (2004). *Total Quality Management*. Nwe Delhi: Pearson Education.
- Burns, A. (2000). "Choosing the Right Tool from the Tool Box: Some Examples of Gemba Kaizen Practice", IEE Seminar, Kaizen: From Understanding to Action (Ref. No. 2000/035). 6, 1-10.
- Chandrasekaran, M., Kannan, S., & Pandiaraj, P. (2008). "Quality Improvement in Automobile Assembly Production Line by Using Kaizen". *Manufacturing Technology Today*, 7(3), 33-38.
- Chaudhari, S. (1997). "Kaizen at Morris Electronics: Key to Competitive Success". *Portland International Conference on Management and Technology*, 365.

- Chen, C. I., & Wu, C. W. (2004). "A New Focus on Overcoming the Improvement Failure". *Technovation*, 24, 585-591.
- Chen, J. C., Dugger, J., & Hammer, B. (2000). "A Kaizen Based Approach for Cellular Manufacturing Design: A Case Study", the Journal of Technology Studies. 27(2), 19-27.
- Cheser, R. N. (1998). "The Effect of Japanese Kaizen on Employee Motivation in US Manufacturing". *International Journal Organizational Analysis*, 6(3), 197-212.
- Conney, R., Terziovski, M., & Samson, D. (2012). Employee Training, Quality Management and the Performance of Australian and New Zealand Manufacturers. *Faculty of Business and Economics, Monash University*.
- Cuscela, K. N. (1998). "Kaizen blitz attacks work processes at Dana Corp". *IIE Solutions*, 30(4), 29-31.
- Dahlgaard, J. J., Kristensen, K., & Kanji, G. K. (2007). Fundamentals of Total Quality Management: Process analysis and Improvement.
- Deniels, R. C. (1996). "Profit-Related Pay and Continuous Improvement: The Odd Couple". *Engineering Management Journal*, 6(6), 233-236.
- Erlandson, R. F., Noblett, M. J., & Phelps, J. A. (1998). "Impact of Poka-Yoke Device on Job Performance of Individuals with Cognitive Impairments". *IEEE Transactions on Rehabilitation Engineering*, 6(3), 269-276.
- Ethiopian kaizen manual (1st ed.). (2011). Addis Ababa, Ethiopia: Ministry of Trade.
- Felix, D. (2012). Increasing competitiveness of service companies: developing conceptual models for implementing Lean Management in service companies. *Politecnico De Milano*.
- Fiocco, M., & Fleming, T. (2007). *Developing Communication Skills: A Continuous Improvement Approach*. Australia: Curtin International College.
- Gauri, D. P., Gajbhiye, A. N., & Gadekar, S. D. (2015). Application of Lean Kaizen In Productivity Improvement And Safety Measures In a Manufacturing Industry. *International Journal of Engineering Research and General Science*, 3(2), 1302-1307.
- Gibb, A., & Davies, L. (1990). "In Pursuit of Frameworks for the Development of Growth Models of the Small Business". *International Small Business Journal*, 9(1), 15-31.
- Gobesh, A., Ward, P. T., Mohan, & David. (2009). Dynamic capabilities through continuous improvement infrastructure. *Journal of Operations Management*, 3(27), 444-461.
- Gonsalves, G. C. (2002). "Business Process Management: Integration of Quality Management and Reengineering for Enhanced Competitiveness", Pro-Quest Information and Learning Company. 7(1), 120-128.

- Granja, D. A., Picchi, F. A., & Robert, G. T. (2005). "Target and Kaizen Costing in Construction", *Proceedings IGLC-13*, 227-233.
- Griffin, R. W. (1988). Consequences of quality circles in an industrial setting: A longitudinal assesment. *Academy of Management Journal*, 31(2), 338-358.
- Gul, A., Jafery, S. S., & Rafiq, J. (2012). Improving Employees Performance through Continuous Improvement. *International Journal of Economics and Management Sciences*, 1(8), 19-24.
- Hongming, H., Sun, H., & Xu, Y. (2000). "An Empirical study on Quality Management Practices in Shinghai Manufacturing Industries". *Total Quality Management*, 11(8), 1111-1122.
- Hyland, P. W., Milia, L. D., & Sloan, T. R. (2004). CI tools and techniques: Are there any differences between firms? *Proceedings 5th CINet Conference*.
- Imai, M. (1986). *The Key to Japan's Competitive Success*.
- Imai, M. (1997). *Gemba Kaizen: A Commonsense, Low Cost Approach to Management*.
- Imai, M. (2000). *Gemba kaizen, A Commonsense, Low-Cost Approach to Management*.
- Irane, Z., & Sharp, J. M. (1997). "Integrating Continuous Improvement and Innovation into a Corporate Culture: A Case Study". *Technovation*, 17(4), 225-226.
- Irani, Z., & Beskese, A. (2004). Total Quality Management and Corporate Culture: Constructs of Organizational Excellence. *Istanbul Institute of Quality*.
- ITU. (2012). *Trends in Telecommunication reform*.
- Kaizen Methods*. (2011, June 10). Retrieved from Manage.com: http://www.methods_kaizen.html
- Kanter, R. M. (1993). *Men and Women of the Corporation* (2nd ed.). New York: Basic Books.
- Katsuki, A. (2008). Transferring Japanese kaizen activities to overseas plants in China. 28(6), 518-539.
- Khan, I. A. (2011). KAIZEN: The Japanese Strategy for Continuous Improvement. *VSRD International Journal of Business & Management Research*, 1(3).
- Kikuchi, K., Kikuchi, T., & Takai, T. (2007). "Method of Overall Consumable Effectiveness". *IEEE International Symposium on Semiconductor Manufacturing*, 1-4.
- Kim, W. C., & Mauborgne, R. (1999). "Strategy, Value Innovation and the Knowledge Economy". *Sloan Management Review*, 41-54.
- Kosandal, P., & Farris, J. (2004). "The strategic role of the kaizen event in driving and sustaining organizational change". *Proceedings of the 2004 American Society for Engineering Management Conference*, 517-526.

- Kothari, C. R. (2004). *Research Methodology: Methods and Techniques* (2nd Revised ed.). Jaipur, India: New Age International (P) Limited, Publishers.
- Kr, V. (2011). An Overview of Kaizen Concept. *VSRD-MAP*, 1(3), 120-125.
- Kumar, S., Dhingra, A. K., & Singh, B. (2016). Implementation of the Lean Kaizen Approach In Fastener Industries Using the Data Envelopment Analysis. *Mechanical Engineering*, 15(1), 145-161.
- Laraia, A. C., Moody, P. E., & Hall, R. W. (1999). *The Kaizen Blitz: Accelerating Breakthroughs in Productivity & Performance*. New York: The Association for Manufacturing Excellence.
- Lee, M. (2000). "Customer Service Excellence Through people motivation and Kaizen", IEE Seminar, "Kaizen: from Understanding to Action" (Ref. No. 2000/035). 5, 1-21.
- Lee, S. S., Dugger, J. C., & Chen, J. C. (2000). "Kaizen: An Essential tool for Inclusion in Industrial Technology Curricula". *Journal of Industrial Technology*, 16(1), 1-7.
- Liker, J. K., & Meier, D. (2006). *The Toyota Way Field Book - A practical guide for implementing for Toyota's 4P's*. New York: McGraw Hill.
- Lunenburg, F. C. (2011). Goal Setting Theory of Motivation. *International Journal of Management, Business and Administration*, 15(1).
- Mackle, K. (2000). "A Framework for Implementation of Kaizen Management System Audit", IEE Seminar, "Kaizen: From Understanding to Action" (Ref. No. 2000/035). 3, 1-6.
- Malik, S. A., & YeZhuang, T. (2006). "Execution of Continuous Improvement Practices in Spanish and Pakistani Industry: A Comparative Analysis", IEEE International Conference on Management of Innovation and Technology. 2, 761-765.
- Malik, S. A., Li-Bin, L., YeZhuang, T., & Xiao-Lin, S. (2007). "Continuous Improvement Practices in Asian Developing Countries: A Comparative Analysis between Chinese and Pakistani Manufacturing Industry", 14th International Conference on Management Science and Engineering. 692-697.
- McNichols, T., Hassinger, R., & Bapst, G. W. (1999). "Quick and continuous improvement through kaizen blitz". *Hospital Material Management Quarterly*, 20(4), 1-7.
- Melnyk, S. A., Calantone, R. J., Montabon, F. L., & Smith, R. T. (1998). "Short-term action in pursuit of long-term improvements: introducing kaizen events". *Production & Inventory Management Journal*, 39(4), 69-76.
- Minton, E. (1998). "Baron of Blitz has boundless vision of continuous improvement". *Industrial Management*, 40(1), 14-21.
- Mustafa, E. M., & Bon, A. T. (2012). Role of Employee Empowerment in Organization Performance. *International Journal of Social Sciences and Management*, 2(6), 19-24.

- Naidu, Babu, & Rajendra. (2006). Total Quality Management.
- Naidu, Babu, & Rajendra. (n.d.). Total Quality Management. *New Age International Publishers*.
- Oakeson, M. (1997). "Makes dollars & sense for the Mercedes-Benz in Brazil". *IIE Solutions*, 29(4), 32-50.
- Oakland, J. S. (2007). *Total Quality Management text with cases*.
- Ohno, T. (1988). *Toyota Production System: Beyond Large-Scale Production*. CRC Press.
- Okada, K. (2004). *Handbook for TQM and QCC volume II: A guide for facilitator and circle leaders*. Japan.
- Palmer, V. S. (2001). "Inventory Management Kaizen", Proceedings of 2nd International Workshop on Engineering Management for Applied Technology. 55-56.
- Pekka, T., & Haari, H. (2012). Continuous Improvement Proposal Process and Operating Model. *Journal of Organizational Management Studies*, 1(3), 59-83.
- Phillip, M. (2010). Management directed kaizen: Toyota's J shuken process for management development. *Journal of Manufacturing Technology Management*, 21(6), 670-686.
- Powel, J. A. (1999). "Action Learning for Continuous Improvement and Enhanced Innovation in Construction", Proceedings of IGLC-7. 433-444.
- Reid, R. A. (2006). "Productivity and Quality Improvement: An Implementation Framework". *International Journal of Productivity and Quality Management*, 1(1/2), 26-36.
- Robbins, S. P., & Coulter, M. (2012). *Management*. USA: Prentice Hall.
- Sajjad, F., & Amjad, S. (2011). Assessment of Total Quality Management Practices and Organizational Development (The case of Telecom Sector of Pakistan). *Mediterranean Journal of Social Sciences*, 2(2).
- Savolainen, T. I. (1999). "Cycles of Continuous Improvement: Realizing Competitive Advantage through Quality". *International Journal of Operation and Production Management*, 19(11), 1203-1222.
- Shafiq, M. (2011). An Investigation of Total Quality Management Practices in Pakistan.
- Shah, Z. A., & Hussain, H. (2016). An Investigation of Lean Manufacturing Implementation in Textile Industries of Pakistan. *Proceedings of the 2016 International Conference on Industrial Engineering and Operations Management*, 668-677.
- Shaikh, J. M. (2012). TQM and Business Performance: An Investigation into FMCG Companies in Pakistan. *International Journal of Scientific & Technology Research*, 1(10), 1-12.
- Shamsuddin, A., & Masjuki, H. (2003). Survey and case investigations on application of quality management tools and techniques in SMIs. *International Journal of Quality & Reliability Management*, 20(7), 795-826.

- Sheridan, J. H. (1997). "Kaizen Blitz". *Industry Week*, 246(16), 18-27.
- Singh, J., & Singh, H. (2009). "Kaizen Philosophy: A Review of Literature". *ICFAI Journal of Operations Management*, 8(2), 51-72.
- Singh, Y. K. (2006). Fundamentals of Research Methodology and Statistics.
- Slobodan, P. (2011). Kaizen Management Philosophy. *International Symposium Engineering Management and Competitiveness*.
- Suárez-Barraza, M. F., & Lingham, T. (2008). Kaizen within Kaizen Teams: Continuous and Process Improvements in a Spanish municipality.
- Suarez-Barraza, M. F., Smith, T., & Dahlgaard-Park,, S. M. (2009). Lean-kaizen public service: An empirical approach in Spanish local governments. *The TQM Journal*, 21(2), 143-167.
- Terziovski, M. (2001). "The Effect of Continuous Improvement and Innovation Management Practices on Small to Medium Performance", Proceedings of 5th International Conference on Quality and Innovation Management. 1-22.
- Thomas, C. J. (2003). Quality time: The art of QA program development for research sites. *Research Practitioner*, 4(6), 1-15.
- Tseng, M. L., Chiu, A. S., & Chinag, J. H. (2006). "The Relationship of Continuous Improvement and Cleaner Production on Operational Performance: An Empirical Study in Electronic Manufacturing Firms, Taiwan, China". *International Journal of Management Science and Engineering Management*, 1(1), 71-80.
- Vaidya, V., & McCartney, A. (2006). "Applying Kaizen to Welding Operations". *Canadian Welding Association Journal*. Retrieved from <http://www.cwa-acs.org>
- Venkatesh, J. (2007). An Introduction to Total Productive Maintenance (TPM). Retrieved August 29, 2009, from http://www.plantmaintenance.com/articles/tpm_intro.shtml
- Westbrook, R. (1995). Organizing for total quality: Case research from Japan. *International Journal of Quality & Reliability Management*, 12(4), 8-25.
- Wickens, P. D. (1990). "Production Management: Japanese and British Approaches". *IEEE Proceedings Science, Measurement and Technology*, 137(1), 52-54.
- Yan-jiang, C., Dan, W., & Lang, X. (2006). "Influencing Factors of Continuous Improvement and Tendency to Change". *IEEE International Conference on Management of Innovation and Technology*, 1, 181-185.
- Yan-jiang, C., Lang, X., & Xiao-na, W. (2006). "Empirical Study of Influencing Factors of Continuous Improvement". *International Conference on Management Science and Engineering*, 577-581.
- Yousuf, N. (2010). Top Management Commitment for TQM - A Process Model.





APPENDIX A
Questionnaire

Assumption University

Martin de Tours School of Management and Economics

Questionnaire to be filled by employees of ABC Engineering Pvt. Ltd.

Dear Respondents,

I am post graduate student at Assumption University. The purpose of this questionnaire is to enable me to carry out a research for partial fulfillment of the requirements for Masters of Science (MSc). The research focuses on ABC Engineering Pvt. Ltd. with the title of *“Investigating Methods and Challenges of Kaizen Execution: A Case Study of an Engineering firm in Pakistan”*. The data will be utilized as an essential information for my case study. Accordingly, your real and genuine reaction is a significant contribution for the quality and fruitful consummation of the task. Hence, to gather information, I kindly request your assistance in responding the question listed below. This information will be used only for academic purpose and your responses will be treated confidentially. If you have any question(s), please call at +66-97-0893219.

Thank you

Haris Karimi

Section 1 - Demographic Data (both for standard quality circle/council members and leaders)

N.B- you don't need to write your name

1. Sex Male ☐ Female ☐

2. Qualification: mark (“√”) on the options provided

Grade	Tick	Grade	Tick	Grade	Tick
Grade 12 & below		BA/BSc/BE		PhD	
12+2 and Diploma		MBA/MA/MSc		Others	

3. Work experience in the company: mark (“√”) on the options provided

Service Year	Tick	Service Year	Tick	Service Year	Tick	Service Year	Tick
Below 3 years		3 to 5 years		6 to 10 years		Above 10 years	

4. Division/Zone _____

5. Location: mark (“√”) on the options provided

Section 2 - Survey Questionnaires on the “Investigating Methods and Challenges of Kaizen Execution.”

Listed below are a series of statements that may represent how employees describe the implementation of kaizen and its success and challenges. Please indicate the degree of agreement or disagreement with each statement with respect to your own feelings about the practices of kaizen and its challenges in ABC Engineering (Pvt) Ltd. Kindly put (√) under one option you think best suits you or shows your level of agreement with each one of them and using the scale given below:

1. Strongly Disagree
2. Disagree
3. Neither Agree nor Disagree
4. Agree
5. Strongly Agree

S/No	Items on the methods and challenges of Kaizen	Scales				
		1	2	3	4	5
<u>1. Training and Awareness</u>						
1	I know my company’s vision, mission statement, core values strategic goals and objectives.					
2	The company formally announced the launching of kaizen philosophy to all employees.					
3	Training has been delivered on the methodologies of kaizen implementation (QCs, 5s, waste elimination, problem solving).					
4	The training delivered enable me understand kaizen methodology and effectively apply to improve my working standards.					

5	There is continuous training program with regard to kaizen methodology as well as job specific training that can improve my productivity.					
<u>2. Top Management Role and Commitment</u>						
6	The management is committed to the implementation of kaizen methodology in the company by creating a culture of continuous improvement of quality.					
7	Top management (respective CEOs) own and strive for the implementation of kaizen.					
8	The company management is committed by providing me with the necessary tools, adequate working space and appropriate equipment to perform my duties effectively.					
9	Top management is responsive in providing feedback for escalated issues raised in Standard Quality Circles meeting.					
<u>3. Employee Motivation and Empowerment</u>						
10	I generally like to schedule my own work and to make job-related decisions with a minimum of supervision.					
11	There exists proper and fair way of motivating employees for their achievement in terms practicing kaizen implementation.					
12	Standard quality circles are empowered in resolving problems and adopting suggestions provided.					

13	I am involving in decision making that affect my work.					
14	Implementation of kaizen in ABC Engineering Pvt. Ltd increased my productivity and motivation towards my work.					
4. <u>Companywide Participation and Standard Quality Circles</u>						
15	Every individual starting from the staff to the extent of top management including the CEO involved in the implementation of kaizen in terms of continuous improvement, problem solving 5s, waste elimination.					
16	I am involving in identifying improvement areas in my workplace.					
17	I am involving in identifying causes of problem and providing solution for the problems.					
18	Employee suggestions and recommendations are appreciated and implemented by management.					
19	Standard quality circle meeting are conducted regularly.					
20	The management (QC leader) encourages individuals to forward improvement ideas.					
21	Standard quality circle meetings are held with the sense of identifying better opportunities for improvement and problem resolution.					

5. <u>Communication</u>					
22	The system encourages employees to communicate the management regarding working challenges they face in attaining their improvement goals.				
23	Action plan integration exists among standard quality circles within/without divisions so that action will be closed according to their schedule.				
24	There exists clear way of communication both upward (from SQC members to management -escalated issues) and downward (from management to SQC members updates on escalated issues).				
25	There exist formal templates at all levels for reporting achievement and challenges in standard quality circles.				
26	The reporting template are clear to understand and do not create confusions.				
6. <u>Corporate Culture & Positive Mindset</u>					
27	Kaizen becomes the working culture around/in my workplace with positive mentality of continuous improvement.				
28	Members of standard quality circles treat each other with respect. For instance criticizing ideas rather than individuals.				

29	The existing organizational culture is supportive for practicing kaizen philosophy.					
30	Problems are solved proactively with the sense of urgency.					

Practices of 5s

		Sorting	Straightening	Shining	Standardizing	Sustaining
31	In order to have standard working place, which of the basic kaizen practices you are doing? (If you have more than one answer you can tick (✓) corresponding).					

N.B

- Sorting- *identify what is necessary from unnecessary.*
- Straightening-*organize necessary items for easy access.*
- Shining-*clean the area improve the appearance.*
- Shining-*clean the area improve the appearance.*
- Sustaining-*requires everyone to make a commitment to continually use the 5S's.*

Section 3 – written answers (please make your response readable and if you want to write more than the space provided you can use the attached paper on the next page quoting the question numbers).

1. What type of waste is there around your working place?
<ul style="list-style-type: none"> • Inventory- any work- in-process that is in excess of what is required to produce for the customer: in service e.g. pending requests, queues
<ul style="list-style-type: none"> • Waiting- any delay occur when one activity ends and the next activity begins
<ul style="list-style-type: none"> • Defects- any aspect of a service that doesn't conform to customer needs
<ul style="list-style-type: none"> • Others
2. In what way do you involve with regard to eliminating those wastes?
3. What sort of things reminds you to remember kaizen?
<ul style="list-style-type: none"> • Organizational culture
<ul style="list-style-type: none"> • Supervisor's follow up
<ul style="list-style-type: none"> • Use of notice board/ monthly flash info
<ul style="list-style-type: none"> • Penalty
<ul style="list-style-type: none"> • Others
4. What sort of improvements do you observe around your workplace or the company at large?

<p>5. Can you mention problems that you face in relation of implementing and sustaining kaizen around your workplace in particular and at ABC Engineering Pvt. Ltd. in general?</p> <p>Problems in relation to:</p>
<p>1) Training and Awareness</p> <p>•</p>
<p>2) Top Management role and Commitment</p> <p>•</p>
<p>3) Communication/reporting template</p> <p>•</p>
<p>4) Employee Motivation and Empowerment</p> <p>•</p>
<p>5) Standard quality circles and 5s</p> <p>•</p>
<p>6) Corporate Culture and Positive Mindset</p> <p>•</p>
<p>7) Others</p> <p>•</p>

<p>6. Do you have any suggestion to overcome the problems you have mentioned above or with regard to improving the implementation of kaizen?</p>
<p>•</p>
<p>•</p>



APPENDIX B

Interview Questionnaire for Managers

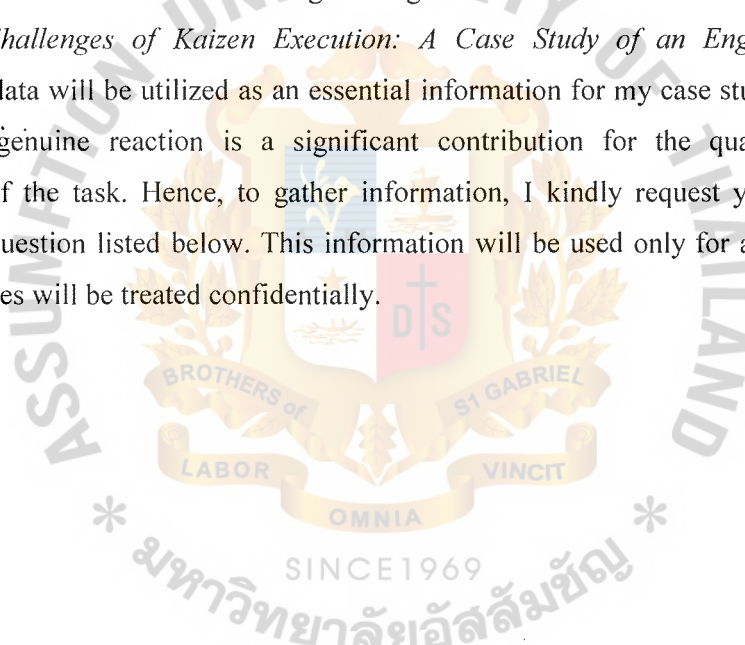
Assumption University

Martin de Tours School of Management and Economics

Interview with Quality and Production Managers

Dear Respondents,

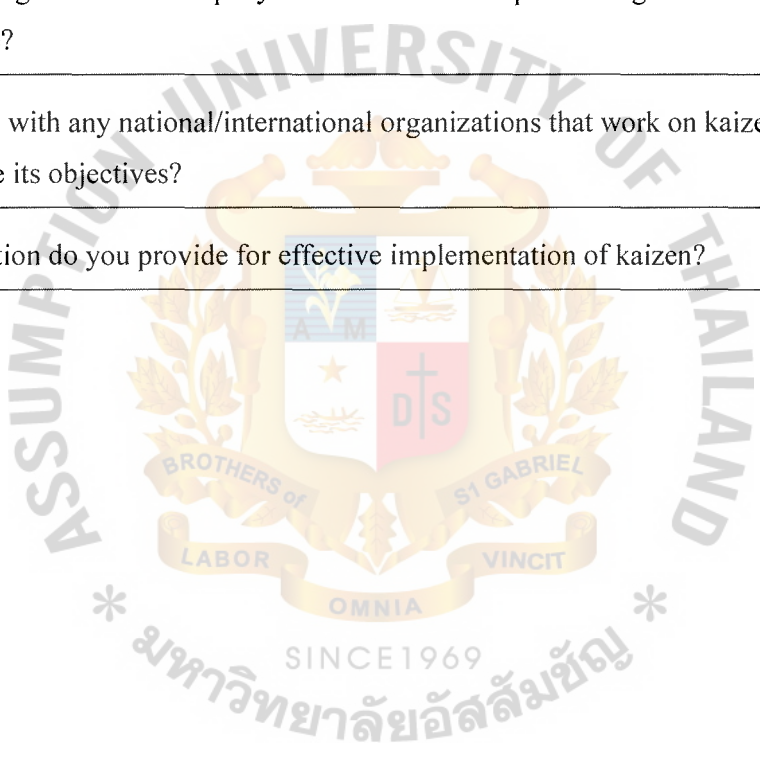
I am post graduate student at Assumption University. The purpose of this interview is to enable me to carry out a research for partial fulfillment of the requirements for Masters of Science (MSc). The research focus on ABC Engineering Pvt. Ltd. with the title of *“Investigating Methods and Challenges of Kaizen Execution: A Case Study of an Engineering firm in Pakistan”*. The data will be utilized as an essential information for my case study. Accordingly, your real and genuine reaction is a significant contribution for the quality and fruitful consummation of the task. Hence, to gather information, I kindly request your assistance in responding the question listed below. This information will be used only for academic purpose and your responses will be treated confidentially.



1. When did ABC Engineering start the implementation of kaizen philosophy?
2. What were the driving forces that urge ABC Engineering to implement kaizen?
3. What were the major activities done before implementing kaizen at ABC Engineering?
4. How the company did communicated employees on the implementation of kaizen?
5. How employees' reacted to the implementation of kaizen?
6. What attempts did management of ABC Engineering made with regard to creating positive mind-set among employees to internalize kaizen philosophy?
7. Did employees take training on kaizen and its implementation?
8. Did the company ever go through other quality improvement systems before implementing kaizen?
9. How many quality circles/council teams are established in the company i.e. both corporate and region? In what way do you manage these quality circles/council teams? For instance their progress, constraints they face in practicing kaizen.
10. How the management of ABC Engineering did demonstrate its commitment to the establishment and persistence of kaizen culture? For instance implementation and sustain the practices of kaizen mindset, 5s, Muda (waste) elimination, accept suggestion from employees on +-improvement and implement those suggestions that are viable and standardization of best practices as well as removing communication challenges?
11. Do all working units/sections/departments/divisions/ have established operational standards so that their progress can be measured in the continuous improvement scope?
12. To what extent does the existing system/culture allows every employee to involve in the improvement of quality and productivity? For instance empowerment of established quality circle/council, existence of fair motivation scheme and recognition for their achievements?

13. What are the improvements achieved after implementing kaizen process at ABC Engineering? For instance working area and product quality improvements in terms of reliability, tangibility, empathy, responsiveness and assurance as well as monetary values?
14. Does the implementation of kaizen in ABC Engineering result in organizational success in terms of achieving its vision, mission as well as prime purpose of kaizen implementation?
15. What challenges do the company encountered in implementing kaizen and sustain as corporate culture?
16. Do you work with any national/international organizations that work on kaizen to assist the company achieve its objectives?
17. What suggestion do you provide for effective implementation of kaizen?

Thank You!





APPENDIX C

Interview Questionnaire for Head of Departments

Assumption University

Martin de Tours School of Management and Economics

Interview with the Heads of Fasteners & Powder Metal Divisions

Dear Respondents,

I am post graduate student at Assumption University. The purpose of this focused group interview is to enable me to carry out a research for partial fulfillment of the requirements for Masters of Science (MSc). The research focus on ABC Engineering Pvt. Ltd. with the title of *“Investigating Methods and Challenges of Kaizen Execution: A Case Study of an Engineering firm in Pakistan”*. The data will be utilized as an essential information for my case study. Accordingly, your real and genuine reaction is a significant contribution for the quality and fruitful consummation of the task. Hence, to gather information, I kindly request your assistance in responding the question listed below. This information will be used only for academic purpose and your responses will be treated confidentially.

1. What improvements do you get after the implementation of kaizen?
2. What are the major key performance indicators (KPI) regarding product/manufacturing improvement in engineering sector?
3. What major challenges did you face in the implementation of kaizen?
4. What do you recommend to overcome these predicaments that you have mentioned?

Thank You!



