Addis Ababa University
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ACHIEVEMENTS AND CHALLENGES OF KAIZEN IMPLEMENTATION

IN THE CASE OF
KADISCO PAINT AND ADHESIVE INDUSTRY SHARE COMPANY

BY

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This is to certify that the thesis prepared by Daniel Shigute entitled: *"Achievements and Challenges Kaizen Implementation: The Case of Kadisco Paint and Adhesive Industry Share Company" and submitted in partial fulfillment of the requirements for the Degree of Master of Arts in (Executive Masters of Business Administration) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.*

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Acronyms

PDCA	Plan-Do-Check-Act
5S	Sort-Set in Order-Shine-Standardize-Sustain
MUDA	Japanese word Meaning Waste
7M	Seven MUDA
QC	Quality Circle
JIT	Just in Time
TPM	Total Productive and Maintenance
QCC	Quality Control Circle
ZD	Zero Defects
TQC	Total Quality Control
TQM	Total Quality Management
5W1H	Who-What-Where-When-Why and How
GRIPS	Japan Production Management System
EKI	Ethiopian Kaizen Institute
KPI	Key Performance Indicator

ABSTRACT

Kaizen is a Japanese management philosophy centered on continuous, incremental improvements in productivity, quality, cost reduction, and waste elimination through employee participation. The objective of the study is to investigate the achievements and challenges of Kaizen implementation at Kadisco Paint and Adhesive Industry Share Company. In order to address the objectives and the research questions, data were collected from the target population of 40 employees. Hence primary data were collected through questionnaires. Descriptive statistics, frequency, percentage, mean and standard deviation analysis were used, and also SPSS and Excel tools were utilized for analysis. The study found that while Kaizen has led to meaningful improvements in quality, delivery time, safety, and employee empowerment, the overall implementation remains partial and concentrated in limited areas. Tools such as quality circles and TQC were practiced very well while the suggestion system showed only moderate engagement. Among the pillars, 5S was the most successfully applied. It was also realized that 75% of respondents believe the company has established fundamental Kaizen infrastructure through training and use of core kaizen tools. However, challenges including lack of top management commitment, misconception, existing negative working culture attitude, and factory layout limitations continue to hinder full-scale implementation. The research concludes that Kadisco must shift from fragmented initiatives to a companywide Kaizen implementation. Key recommendations include strengthening leadership support, expanding quality circles, revitalizing the suggestion system, and addressing structural and cultural barriers to enhance continuous improvement and long-term performance.

Key Words: Kaizen, Kadisco, Implementation

CHAPTER ONE

1 INTRODUCTION

1.1 Background of the Study

The word Kaizen emanates from two Japanese words – kai change and zen for good and in combination meaning continuous improvement (Dysko D, 2011). On the other hand, the term kaizen has been used in management to mean the creation of a system which enables continuous and sustainable improvement for organizations. Since global competition calls for never ending improvement, the goal of kaizen activities is not static and always has been growing to a higher level (GRIPS, 2009).

Increasing competition in the industrial world requires that companies should aim at making continuous improvement (Winy Utari, 2011). Apparently, in today's competitive and fast-growing world, subsequent development, implementation and management of new technology is essential to cope with the ongoing changes in production and in terms of meeting the growing wants and demands of the society and thus organizations who are able to cope with these situations are able to survive.

It also should be noted that the benefits of Kaizen is not only limited to the improvement of production and quality of goods and services but it is also useful in achieving immediate results such as waste reduction, decreasing the general production costs, sustainable improvement of quality, meeting delivery deadlines, improving working conditions, in motivating and involvement of employees for the continuous improvement of enterprise's performance, and for ensuring discipline and standardization practices (K. Otsuka et al.. 2018)

As a result of the growing importance of Kaizen for the improvement of quality and industrial productivity, it has become a global venture spread by multinational companies and their employees. Therefore, Kaizen has spread throughout East Asia, Europe, and North America, boosting productivity in those regions. Industrial development has also been successfully achieved in every developing country where the use of this approach has become widespread.

Kaizen has improved productivity and product quality, hence the competitiveness of manufactured products in international markets (K. Otsuka et al., 2018).

Propagation of Kaizen in Africa is still very small due to the limited number of players who bring in the practice (GRIPS, 2009). There are a lot of unexploited benefits of selective and well calibrated application of kaizen from which African countries can draw upon to improve their production and service units (Foster, 2010) as cited by (Getu. A,2016). Botswana began introducing Kaizen as early as in the 1990s and has been followed recently by Egypt, Tunisia, Ethiopia, Zambia, Tanzania, Ghana, Kenya, Cameroon, Senegal, Sudan, and the Republic of the Congo (K. Otsuka et al., 2018)

According to EKI report the Kaizen project in Ethiopia was structured into three distinct phases. During the initial phase, commencing on August 2009, a comprehensive evaluation was conducted on the quality standards and productivity performance 63companies (EKI,2014). On the same report it states that following the initial assessment of these factories a group of 30 companies were selected based on the criteria of geographical nearness to Addis Ababa within 10-kilometer radius, export and import contribution, scale of capital, and workforce size. Kadisco Paints and Adhesive industry Share Company was one of the selected companies for implementation of Kaizen with strong support and recommendation of Japanese kaizen Institute. Then later, Ethiopian Kaizen Institute was established in 2011(EKI,2014).

Kadisco Paint and Adhesive Industry Share Company is a company that trace its origin back from a small automotive spare parts dealership in the busy streets of Addis Ababa, Ethiopia in the late 1960s. It's engaged in the manufacturing of paints, adhesives and fillers. In 1979, Kadisco broadened its of building materials and automobile spare parts distribution operations to include the manufacturing of adhesives and glues, with plans for future expansion into paint and coatings sector. However due to political and economic climate not being conductive for investment, the expansion to the production was delayed until 1993. But as of February 10,2015, the company formed a joint venture with Berger International Limited.

1.2 Statement of the Problem

With effective implementation of Kaizen, it is expected that the organizational performance is enhanced by improving productivity and quality, costs and wastes are reduced, and ultimately revenue and profitability is increased. Despite launching Kaizen program as early as 2010, Kadisco Paint and Adhesive Industry Share Company has encountered significant challenges to fully realize the achievements. Preliminary assessment conducted on the shop floor revealed that the implementation remains limited primarily confined to a few quality circles rather than embracing companywide. Progress toward full integration across all departments has been slow and inconsistent. This indicates a gap between the intended outcomes of Kaizen and its actual execution within the company.

Therefore, this study seeks to assess the achievements attained by implementing Kaizen principles and tools at Kadisco simultaneously identifying the key challenges hindering its comprehensive implementation. Drawing from the company's successful practices, the study aims to provide practical recommendations to address the challenges and support more effective and widespread adoption of Kaizen principles.

1.3 Research Questions

1. How is Kaizen implementation practice in Kadisco?
2. What major achievements has Kadisco obtained since the implementation of Kaizen?
3. What challenges were encountered during Kaizen implementation in Kadisco?

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of the study is to investigate Kaizen achievements and identify challenges at Kadisco Paint and Adhesive Industry Share Company.

1.4.2 Specific Objective

The Specific objectives are:

- To review Kaizen implementation practices in Kadisco.
- To identify achievements obtained and challenges encountered during Kaizen implementation.

1.5 Significance of the Study

Since the establishment of Kadisco Share Company and the adoption of Kaizen implementation approach, a research has not been undertaken on the assessment of achievements and challenges of Kaizen implementation. Hence, the study has significant importance to understand the achievements gained and the challenges that emerged in due course of implementing Kaizen's approach.

This study holds several important contributions:

- It provides a detailed analysis of Kaizen implementation process at Kadisco, offering practical insights into how continuous effective practices are applied in an industrial setting.
- It highlights key achievements resulting from Kaizen implementation and aims to document successful practices and lessons learned, which can serve as reference points for other organizations seeking to adopt similar approaches.
- It identifies major challenges encountered during the implementation process and proposes recommendations that may benefit similar industries facing comparable obstacles.
- Finally, the study offers valuable insights for both practitioners and researchers, serving as a foundation for future research and practical applications in the field of quality and productivity improvement.

1.6 Scope of the Study

Ethiopian government selected 30 industries from different sector for the kaizen implementation program in 2009. As a result of this and to deal with the subject in a fairly deeper length the scope of this research is limited to single case company that is Kadisco Paints and Adhesive Share Company which represents chemical and paint sector. There are a number of contexts in which the performance of a company can be assessed ranging from the general to the specific, but this study is designed to look into the specific and the actual achievements of Kadisco company and also understand the challenges encountered. In addition to this the study will explore the employee attitude and management commitments towards Kaizen implementation.

1.7 Limitation of the Study

This study focuses exclusively on Kadisco Paint and Adhesive Industry Share Company with the aim of assessing the achievements and challenges of Kaizen implementation. While this study provides in-depth insights into the company's specific experiences, the findings may not fully represent the broader context of similar industries. Incorporating additional companies from the same sector would have offered a more comprehensive and general understanding of Kaizen implementation outcomes and challenges.

C.HAPTER TWO

2 LITERATURE REVIEW

2.1 Historical Overview and Definitions of Kaizen

Kaizen is one of the quality management principles that emphasizes on continuous incremental improvement on day-to-day operations of organizations. It has been extremely instrumental in improving productivity and efficiency of Japanese industries post-world War II (Parissa H.,2019).

Further on Kaizen, according to (Imai,1986) cited by James R, “is the basic philosophical concept underlying the best Japanese management. It is the umbrella concept that covers most of the uniquely Japanese management practices that have helped Japanese companies to start from zero in the 1950s and become world class competitors in the 1980s.”

As a matter of fact, Kaizen is originating from Toyota corporation, then the concept diffuses among Japanese manufacturers as their reputation for producing high quality goods grew in the international market during in the 1980s.The widespread performance improvements among Japanese firms led to Kaizen being recognized as a critical component of Japanese industrial management and a significant factor in the competitiveness of Japanese manufacturers (Imai, 1986).

In another perspective, according to Jeffrey K. (2004) cited by Dysko D. (2011) “People are the “engine” of continuous improvement. Therefore, Toyota invests in people and so in reverse picks up the devoted workers who go to work every day on time and continually improve their operational activities.

2.2 The Objectives of Kaizen

The central; objective of Kaizen is to improve workplace practices and activities with a goal of gradual changes which help the organizations to have an extra competitive advantage over the competitors. This means, Kaizen aims for improvements in productivity, quality, effectiveness, safety, and waste reduction. In a broader sense, Kaizen also relies heavily on organizations' culture change that promotes to improve continuously and incrementally its operation. It also constitutes a participatory approach on creativity to satisfy customers' need.

2.3 Principles of Kaizen

Basically, Kaizen uses 5 main principles:

i) Processes which target gradual and continuous improvements rather than radical changes. It is implemented in a step-by-step approach in participatory way, through maximum employees' involvement and empowerment and gradually developing their skill through training, education, coaching and mentoring which ultimately result in quality improvement and customer satisfaction.

ii) Human resources are the most important company asset

Kaizen considers employees as scarce resource and managing this resource differently makes the organization different from others. Kaizen aims to improve employees' working condition and streamlining operations without layoffs. What matters most is employee's involvement and empowerment to have a sustainable growth of production volume and ultimately increase of productivity.

iii) Teamwork

Team work is the core principle of Kazan's approach. Its quality circles are established from different functions with the aim to improve and support each member of the team through synergy effect. Each department is considered as a team and they will be responsible for making small changes that impacts the organization positively. All employees from top manager to front line workers should share common values, business objectives, and information as members a team of an organization.

v) Discipline

Discipline is extremely vital; hence kaizen follows participatory approach as a matter of strict discipline. Members of a team must adhere to group norms religiously. Management as well as workers need to believe in Kaizen's idea and strive toward obtaining the small goals in order to reach overall success. A strong commitment to discipline and to the kaizen method will prove success for a company.

vi) Continuous Improvement

The small improvements will lead to bigger improvements throughout the entire company. This is why kaizen is considered as a continuous and incremental improvement. Even with the changes, there are still small things employees can do to change the way they work.

2.4 Kaizen Implementation in Manufacturing Industries

Kaizen implementation is a continuous activity that uses different kaizen tools like 5S, 7M and standardization on individuals and teams with main focus on gradual changes in terms of improved quality, productivity, space utilization, reduced lead time, waste minimization, improving employee's motivation, empowerment and better customers' services. In today's business environment manufacturing industries faced with never ending competition to stay in market and are required to continuously assess their manufacturing and management approaches to improve customers' services besides cost reduction.

Its implementation success and transferability depends on different key factors such as top management's commitment and dedication, employee's attitudes, effective communications, resources, reward and recognition system, work place safety and existing work culture. The degree of compatibility between Japanese companies' culture and host country's culture has a major impact on implementation and transferability of kaizen as explained by Anh P et. al (2011).

2.5 Systems and Techniques of Implementation of Kaizen

There are large number of tools (techniques) and systems that can be used during kaizen implementation period - such as JIT, TPM, QCC, Suggestion System ,5S,7M, Standardization (PDCA) to mention some. However, in this study we will only focus on Housekeeping (5S), Waste (Muda) elimination (7M), PDCA and QCC.

2.5.1 Major Kaizen Systems: Concepts of Gemba Kaizen and Suggestion Systems

According to Imai (1997), a successful implementation of kaizen depends on whether the following kaizen systems are in place or not.

2.5.1.1 The Concept of Gemba Kaizen

Gemba means a real place such as shop floor where products and services are realized**.** It's the first step to go and assess situations at Gemba for any activity improvement in Kaizen. The following systems are very important in practicing and sustaining kaizen's improvement activities.

According to Imai, (1986) the concept of kaizen is classified in to four categories and these are: -

i) The kaizen objective category – The concept of productivity

ii) The kaizen result category – Just-In-Time (JIT)

iii) The kaizen main function category - The Quality Control Circle (QCC)

iv) The kaizen extension category – The concept of Total Productive and Maintenance (TPM)

- The concept of Zero Defects (ZD)
- The concept of Total Quality Control (TQC)
- The concept of Total Quality Management (TQM)

2.5.1.2 *The Suggestion System*

A suggestion system is the method by which the ideas and suggestions of employees are communicated upwards through the management hierarchy to achieve cost saving or improve product quality, workplace efficiency and customer service.

According to Imai (1997), suggestion system is a moral boosting benefit of positive employee participation and developing Kaizen minded and self-disciplined employees.

2.5.2 Kaizen Techniques: Pillars of Kaizen

According to Imai (1986), Kaizen management philosophies and practices have the three pillars of kaizen thus are housekeeping, waste elimination and standardization.

2.5.2.1 Housekeeping (5S)

According to Imai (1986); 5S implementation means applying the following activities in the workshop: Sorting, set in order, Shine, Standardization and sustain.

Sorting: - It is a process that involves identifying, labeling and selecting; which are required to complete the job, and remove everything else from your work area. Its main focus is on removing all unnecessary items from the work place.

Set in order: -after selecting items; customization of workstation is needed so that arrangement and placement of tools are decided based on easy way to select, use, and return to their proper location.

Shine: - Its focus is on the removal of dust, dirt, and grime. It emphases on shop floor layout through painting and marking. Besides cleaning up the place, all the disorder and trash will be removed.

Standardize: - Standardizing creates a work area free of checklists; if appropriate standards are put in place and this will make it easier to maintain and continue improving.

Sustain: - Sustaining is the toughest of all S's and depends on how well we have performed the previous four S's.

Implementation of 5S in any organization has benefits such as creating cleanliness, and safe working environment and this will refresh work place "Gemba" and greatly improves employee's morale and initiative.

***2.5.2.2 Waste (Muda) Elimination* -** Wastes are one of the means for productivity loss mechanisms. So, to increase the production quality and quantity, we must apply waste reduction methods in the working area. The main seven types of waste in the working area especially in manufacturing plants are: -overproduction, excess inventory, waiting, transporting, defect-making, unnecessary motion, and excess processing.

i) Muda of Overproduction - Muda of overproduction is a type of waste that occurs when products are manufactured more than the required quantity. It results in unnecessary raw material consumption, wasteful input of utilities and manpower, machinery over burden, additional space to store excess inventory, added transportation and administrative costs.

ii) Muda of Inventory - Products that are kept in the inventory do not add any value to the organization rather they occupy warehouse space, and demanding additional facilities such as warehouses and storing equipment.

iii) Muda of Repair or Rejects - Rejects interrupt production and require expensive rework.

iv) Muda of Motion - Motion of persons not directly related to adding value is unproductive. Hence, unnecessary movement results fatigue and injury. Thus, idle workers must be avoided as principle for the safety and wellbeing of employees.

v) Muda of Processing - At every step in which a work piece or a piece of information is worked on, value is added and sent to the next process.

vi) Muda of Waiting - Muda of waiting happens when workers sit idle waiting to receive their set job order.

vii) Muda of Transportation - n the work place material and equipment's transportation is mandatory, but if the transportation adds no value that is waste.

2.5.2.3 Standardization (S/PDCA) - It is a technique used to sustain specific targets set by kaizen improvement ideas in the shop floor process. Dysko D.(2011) discusses the use of Deming Circle PDCA(Plan- Do-Check-Act) for improvement activity and SDCA(Standardize-Do-Check-Act)standardize and sustains the improved process.

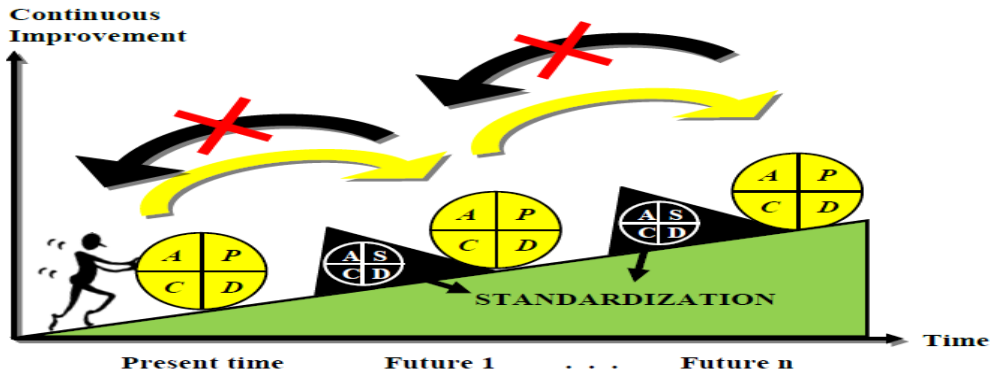


Fig.4.23 Standardization Process, Source: ***Dysko D. (2011): Utilization of human potential to achieving continuous improvement***

Organizations can realize significant improvement through continuous standards follow up, defects control log, cycle time recording, and inspiring teams to bring problem-solving initiatives together with time motion study to standard time sheets. After time standards maintained in the operating procedures the process highlights when deviations occur, then workers identify the problem and analyze its root cause to suggest a solution. either to correct the deviation, revise or improve the standard.

2.6 The Levels of Kaizen

Imai (1986) described three levels of KAIZEN as follows:

1. Management-Oriented Kaizen
2. Group- Oriented Kaizen and
3. Individual -Oriented Kaizen

2.6.1 Management Oriented Kaizen: - concentrates on the very important logistic and strategic issues and provides the energy to keep up progress and moral.

2.6.2 Group Oriented Kaizen: - is a team work, as a permanent approach is represented by Quality Control (QC) circles and other small group activities to solve problems using fish bone chart, PDCA,5W1H. Team members not only identifying problems but also identify and analyze the causes, implement and test new countermeasures, and establish new standards and procedures.

2.6.3 Individual Oriented Kaizen Individual oriented kaizen is manifested in the form of suggestions. The suggestion system is a vehicle for caring out individual oriented Kaizen. It is often regarded as a morale booster and it does not always ask for immediate payback on each suggestion.

2.7 Kaizen Achievements

Kaizen Achievements (Outcomes): can be categorized as technical and social system outcomes as described in different literatures.

2.7.1 Technical System Outcome

Imai (1986) in his book suggests that the implementation of Kaizen leads to enhanced quality and better productivity in the short term. He further elaborates that, managers may gain short-term kaizen performance on productivity increase by 30 percent, 50 percent, and even 100 percent and higher without major capital expenditure. In addition, Farris (2006) stated that, the technical system outcome may include: higher productivity, enhanced quality, better floor space utilization, shortened lead time, reduced cycle time and waste reduction.

2.7.2 Social System Outcome

Imai (1986), explained that Kaizen is a humanistic approach that is based on the belief that every human being can contribute to improving his workplace, where he spends one-third of his life. According to Farris (2006), the social system outcome aligned with Kaizen is continuous improvement such as: employees' knowledge, skill and attitude.

Farris (2006), further summarized and enumerated the social outcomes realized through implementation of Kaizen which include:- enhanced enthusiasm for participating Kaizen activities, stronger support for the kaizen program, the development of a belief that change is achievable, improved employee attitude toward work, increased employee empowerment, enhanced cross-functional collaboration, encourages a culture that supports long-term improvement and the sense of pride among employees in their accomplishments.

2.8 Challenges on Kaizen Implementation

According to different literatures there are different challenges that determine the successful implementation of Kaizen. Although the extent of challenge encountered can vary from organization to organization, some are almost common to all such as, lack of top management's commitment and involvement, employees' attitudes towards implementation, gap in education level and training , lack of communication system ,resource availability, existing organizational

objectives (culture, infrastructure and work place safety), type of motivation (reward and recognition systems) and performance measurement ,evaluation and documentation activity.

Muhammad A. et al (2011), points out that kaizen implementation is a function of management commitment. Moreover, it discussed that culture and organization structures are key factors in kaizen implementation. On the other side Kaizen approaches were not easily transferred to other countries even when companies' owners were Japanese; mainly due to differences in national culture and working ethics.

Admasu A. (2015) discusses that top management's commitment and involvement, employees' attitude, and culture as a key factors in implementation of kaizen. Furthermore, the article explains that during implementation period companies may face a lot of obstacles. To resolve these challenges; frequent internal and external training is mandatory and this helps to stay on the right track of operation.

2. 9 Review of Kaizen in Research Framework

Kaizen management principle has considerable interest among researchers because it increases performance and productivity of the company and helps to produce high -quality products and services through minimization of the cost of waste. Different authors have discussed the concept of Kaizen and many researchers have performed case studies to cover wide range of benefits like increased productivity, improved quality, reduced cost, improved safety and faster deliveries, etc.

Dysko D.(2011), summarizes his thought based on his experience said that "Kaizen focusses more on process than results and it is about creating company culture that does not tolerate waste ." Moreover he points out best industry outcome on his study with respect to design of line 36 % productivity increase were achieved and with regard to standardization work 20 % productivity increase, 59 % lead time reduction and 120 m^2 reduction in space utilization were observed .

According to Pankaj T. (2017), a study on micro and small manufacturing enterprises in India have shown improvements in reduction of overproduction, over processing, waiting and making defects in addition to better space utilization and faster delivery time. On the other hand, the study also reflects that lack of managements commitments, employees' attitudes towards kaizen

implementation and lack of skilled human resource were some of the challenges encountered by enterprises.

Abdulmouti H. (2018) explains that TOYOTA, Saudi Arabia benefited from kaizen in terms of an increase in annual output by 13%, a reduction of damaged vehicles due to layout 76 % and $ 3.33 million saving for not investing in new production line.

According to Imai (1986), Kaizen is a continuous improvement process involving everyone, managers and workers alike. Imai introduced a process-oriented approach; referred to as the ―plan-do-check-act (PDCA) cycle is used for process improvement.

Hammer et al. (1993) as cited by (Getu A.,2016) explain that "Kaizen promotes process-oriented mindset, as improvements to process are necessary before better outcomes can be achieved. Broadly, improvement can be categorized as continuous improvement and innovation. Kaizen implies small incremental improvements as a result of cumulative effort of everyone in the organization. In contrast, innovation involves a significant achievement in the status quo resulting from substantial investment in latest technology and equipment, or a through application of Kaizen philosophy for continuous improvement.

Deming (1995) as cited by (Getu A., 2016) states that "organizations are evolved at a greater rate than at any time in recorded history". Since organizations are in an ever-changing environment, most of them are in a continuous state of flux. This change coupled with a stiff competition presents significant managerial opportunities and challenges. To overcome the challenges and capitalize on opportunities, most managers applied kaizen management philosophy. Moreover, Newitt (1996) states the key factors to determine the business process management requirements. The author further mentioned that Kaizen philosophy in the business process management will liberate the thinking of both management and employees towards creativity and value addition.

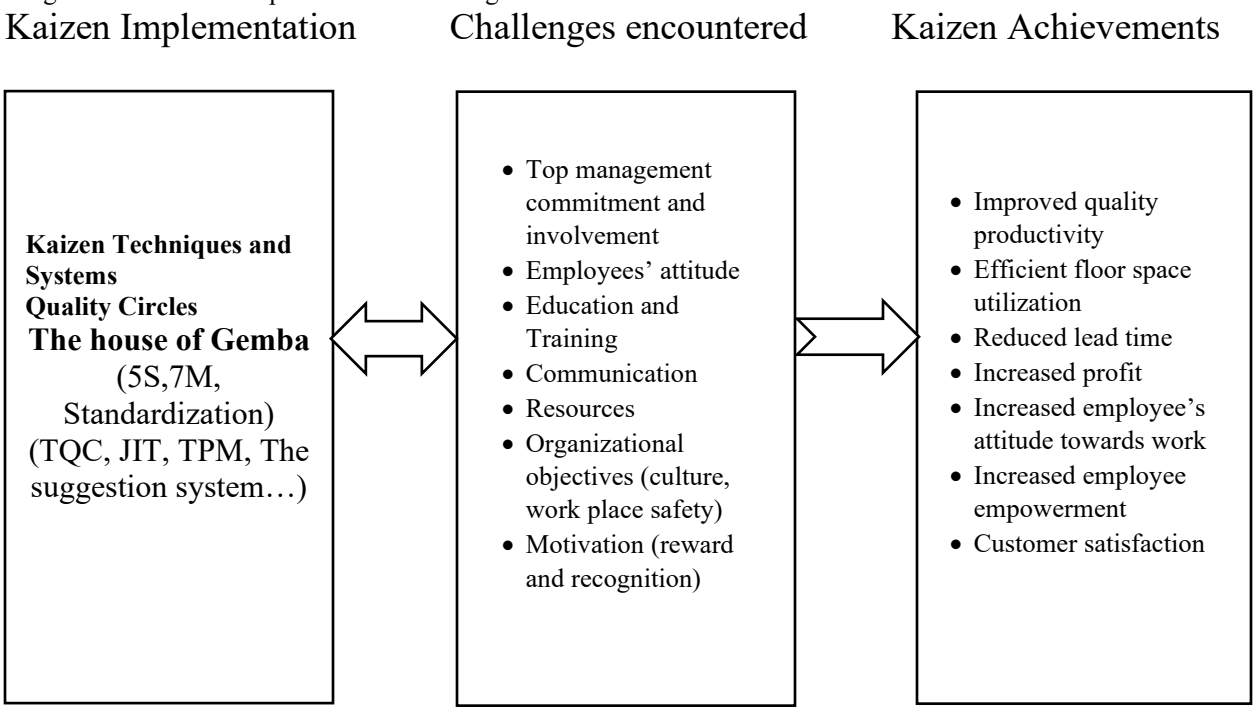
Doolen et al. (2003) cited by (Getu A.,2016) describe the variables that are used to measure the impact of Kaizen activities on human resource. These variables include attitude toward Kaizen events, skills gained from event participation, understanding the need for Kaizen, impact of these events on employee, impact of these events on the work area, and the overall impression of the relative successfulness of these events. According to Asayehgne D. (2014), case companies

under study were able to reduce cost of production, improved quality and manage to reduce lead time and improved customer satisfaction. However top management don't seem to be committed to Kaizen teamwork and shopfloor employee were rarely called to participate as a team.

2.10 Conceptual Framework

The following conceptual model can be used in this study. The framework tries to establish interrelationship among the factors that will help to answer the research questions. The kaizen implementation process starts with selection of model area of quality circles, providing the required training and begins the journey with housekeeping 5S, then waste elimination and standardization activities through different kaizen performance measuring and recording tools including visual communication. On the other hand, organization encounter challenges which depends on the extent of top management's commitment and involvement, employee's attitudes, resources availability and allocation, reward and recognition system, work place safety and existing culture to realize the expected kaizen achievements in terms of improved quality and productivity, efficient floor space utilization and ultimately satisfaction of customers.

Diagram 1 Kaizen conceptual framework diagram



CHAPTER THREE

3 RESEARCH METHODOLOGY

3.1 Research Design

Apparently, research design is a framework that outlines the overall approach and methods used to undertake a research study. In view of this perspective, this research uses a descriptive research design with qualitative approach. In this regard, this section presents the study area and population, nature of the study, methods of data collection, analysis and presentation. In doing so relevant data was collected and analyzed to ensure and produce a valid and reliable results that will answer the research questions.

Most importantly, methods of data collection that determines how data are gathered were outlined. The data analysis techniques which explain how the collected data were analyzed and interpreted are also described very well. With the aim of understanding kaizen's achievements and to identify the major challenges faced during kaizen implementation.

3.2 The Study Area and Target Population

Kadisco Paint and Adhesive Industry Share Company is a company that traces its origin back from a small automotive spare parts dealership in the busy streets of Addis Ababa - Ethiopia in the late 1960s. The factory is located in the Southern part of Addis Ababa in Kaliti sub-city. The factory has been engaged in the manufacturing of paints, adhesives and fillers. Since 1979, Kadisco expanded its production activities of manufacturing adhesives and glues with a projection to begin in the sector of coatings. The organization has a total of 233 employees. The research is aimed at studying target groups of 40 employees which constitutes seven (7) quality circles. Out of which five (5) quality circles are composed of six (6) members and the remaining two quality circles consists five members each. The research was conducted on the entire population considering small target population.

3.3 Nature of Data

Data in a research work are collection of facts and figures that can be processed and used to describe the quantity and quality of information. For this study purpose primary data will be collected from the target group using different techniques. The data collected will be analyzed and interpreted to find out the achievements and challenges of Kaizen implementation in Kadisco.

3.4 Method of Data Collection

Questionnaires: - Data for this study purpose are collected using primary methods through different data collection techniques. One of these methods is distributing questionnaires to selected employees which constitute close-ended questions.

3.5 Analysis of Data and Presentation

This section deals with the description, analysis and presentation of the data collected from the target study groups of Kadisco employees. As indicated in the methodology section, the data was collected through questionnaires. Then the data were analyzed using a statistical analyzing software of SPSS. Descriptive statistics such as frequency, percentage and mean were also used to analyze the data obtained from questionnaire.

3.6 Reliability and Validity

To check the reliability and validity of data, different methods can be employed. These include statistical techniques like correlation and regression analysis, assessing internal consistency, and using methods like test-retest reliability. In light of this, to check the reliability of the collected data of this thesis for the purpose of measuring internal consistency Cronbach's alpha coefficient of correlation was used. Therefore, the analyzed data for each construct and all constructs combined resulted a coefficient as shown in the table below which is higher than the minimum expected 0.70 score that suggests good internal consistency.

Construct	Cronbach's Alpha	N of Items
Training and Education	0.796	8
Kaizen Tools	0.908	14
Kaizen Pillars	0.903	16
Kaizen Achievements	0.947	32
Kaizen Major Challenges	0.922	18
All- Construct	0.979	88

To determine the validity of scaled items in the questionnaire both excel and SPSS were used and correlation coefficient were generated with a level of confidence interval 95 %. Therefore, all questionnaire's items were found valid.

CHAPTER FOUR

4 DATA ANALYSIS AND DISCUSSION

4.1 Demographic Variable of Respondents

Questionnaires were distributed to the study target groups of the employees of Kadisco. Charts, tables and graphs were used to illustrate the demographic variables of the respondents such as gender, education background and years of service as presented below.

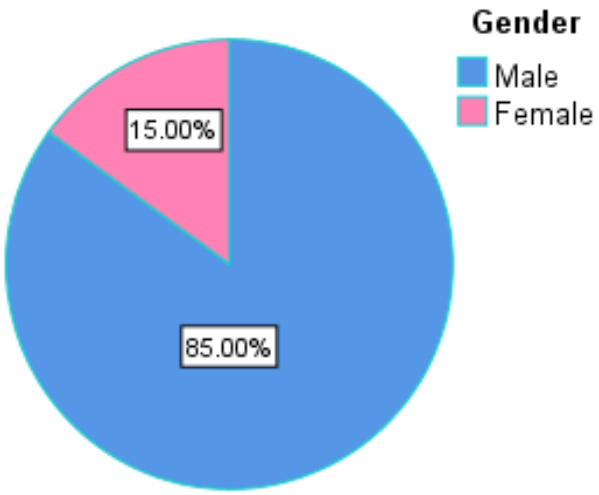


Chart 1: Demographic variable of Respondents: Gender

As shown from the pie chart above, out of the total 40 target group 34 (85%) respondents were male. On the other hand, 6 (15%) of respondents were found to be female. This shows that majority of the respondents from the sample groups were male as compared to female respondents. This is an indication that the organization prefers to recruit male workers than females. The reason for this is the organization is engaged in labor-intensive manufacturing process and to protect female workers from venerability of chemical exposure .

Academic Level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under Grade 10	13	32.5	32.5	32.5
	Grade 10	4	10.0	10.0	42.5
	Grade 10 (New Curriculum) or 12 (old curriculum)	10	25.0	25.0	67.5
	Complete Diploma	4	10.0	10.0	77.5
	BSC/BA Degree	9	22.5	22.5	100.0
	Total	40	100.0	100.0	

Table 2: Respondents' Educational Background

As illustrated in the above table 2, 10 (25%) of the respondents have completed educational level of Grade 10, 4 (10%) have obtained diploma while 9 (22.5%) have obtained BSC/BA degree and the remaining 13 (32.5%) of the respondents have educational level below Grade 10. This shows that the majority of respondents (67.5%) have Grade 10 and College or University level of education. This implies that the majority of the staffs have the potential and better capacity for understanding Kaizen principles which are instrumental for Kaizen implementation in the organization.

Years of Service					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 Years	7	17.5	17.5	17.5
	6-10 Years	5	12.5	12.5	30.0
	11-15 Years	17	42.5	42.5	72.5
	Above 20 Years	11	27.5	27.5	100.0
	Total	40	100.0	100.0	

Table 3: Employees Years of Service

As shown in the above table 3 out of 40 respondents, 17 (42.5%) respondents have a service of 11 to 15 years and 11 (25.5) respondents have worked for more than 20 years. From the above table we can understand that the majority of the staff 28 (70%) of the employees worked from 11 up to more than 20 years. On the other hand,7(17.5%) respondents have worked 1 to 5 years of service.

4.2 Collected Data Analysis

The data collected through structured questionnaires provided valuable insights into the status of Kaizen implementation at Kadisco Paint and Adhesive Industry Share Company. The analysis focused on: - 1) reviewing kaizen practices with respect to application of Kaizen pillars, tools and systems, 2) achievements gained through implementation, and 3) major challenges encountered.

4.2.1 Analysis on Kaizen Implementation Practices

Statistics

	N		Mean	Std. Deviation	Variance
	Valid	Missing			
Kaizen Implementation Practice	40	0	4.00	0.56	0.31
Kaizen Tools: Suggestion System Composite	40	0	3.91	0.84	0.71
Kaizen Tool: Quality Circle Composite	40	0	3.90	0.66	0.44
Kaizen Tool: Total Quality Control Composite	40	0	4.05	0.93	0.86
Kaizen Pillars: Housekeeping (5S) Composite	40	0	4.27	0.71	0.50
Kaizen Pillars: Standardization Composite	40	0	4.14	0.68	0.47
Kaizen Pillars: Waste Elimination Composite	40	0	3.92	0.57	0.33
Training and Education Composite	40	0	3.79	0.62	0.38

Table 4. Analysis on Kaizen Level of Implementation

When respondents' were asked to express their opinion about the practice of kaizen implementation as shown above on Table 4.2.1, Housekeeping (5S) from Kaizen pillars have a higher mean value 4.27/5 with standard deviation of 0.71, followed by Standardization mean

value 4.14/5 with standard deviation of 0.68 and waste elimination has scored a mean value 3.92/5 and with the lowest standard deviation of 0.57 .Similarly , from Kaizen tools total quality control has highest mean score 4.05 with standard deviation of 0.93 and followed by Suggestion System 3.91/5 with standard deviation 0.84 and quality circle has mean value score 3.9/5 with standard deviation 0.66 .

4.2.1.1 Analysis on Training and Education questions

No	Criteria	Opinion, N=40	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Training and education has been given about Kaizen before Kaizen Implementation.	Frequency	0	4	6	15	15
		Percentage	0	10	15	37.5	37.5
2	The factory consistently gives training and education.	Frequency	0	6	8	19	7
		Percentage	0	15	20	47.5	17.5
3	Factory provides necessary material for training and education.	Frequency	1	2	7	22	8
		Percentage	2.5	5	17.5	55	20
4	Training and education given by appropriate professionals having Sufficient skills.	Frequency	0	0	7	15	18
		Percentage	0	0	17.5	37.5	45
5	New employees get induction training and attach to a mentor.	Frequency	2	6	10	19	3
		Percentage	5	15	25	47.5	7.5
6	Employees are cross-trained across departmental boundaries.	Frequency	1	6	2	22	9
		Percentage	2.5	15	5	55	22.5
7	Skills and training record are maintained for everyone.	Frequency	2	4	9	23	2
		Percentage	5	10	22.5	57.5	5
8	Employees became eager in learning new skills.	Frequency	4	0	3	23	10
		Percentage	10	0	7.5	57.5	25

Table 5. Responses on Training and Education questions

It is necessary that the employees need to be informed and well aware about the work they are assigned to do. When respondents were asked whether they were given training and education about Kaizen before its implementation in Kadisco on the above table 5 (as per question No. 1) 15 (37.5 %) of the employees agreed that they were trained and educated about Kaizen while 15 (37.5 %) responded a high level of endorsement by responding "strongly agree". According to this data we can conclude that Kadisco has completed the necessary preparation ahead of time.

From the above table 5 (as per question No. 2), a question was asked to respondents whether the factory consistently gives training and education to its employees or not. Out of the total respondents 19 (47.5%) agreed that the factory provides training while 7 (17.5%) responded saying that they 'strongly agreed' regarding the provision of training. On the whole 26 respondents or (65%) had participated on training and education.

In order for training and education to achieve its intended objective, it is necessary that the necessary materials must be available. In light of this, from above table 5 (as per question No. 3) respondents were asked whether the factory has provided the necessary materials required for the provision of training and education. Out of the total respondents, 22 (55%) respondents confirmed the provision and 8 (20%) strongly agreed that the necessary material was provided. On the whole 30 (75%) responded that the factory has provided the necessary material required for the training and education. The provision of necessary materials for education and training enhances learning outcomes ensures the increased consistency in knowledge transfer for the trainees and it ultimately benefits both the individual employees and the organization as a whole.

From table 5 above (as per question No. 4) was designed to enquire respondents' opinion whether the training and education was delivered by appropriate professional. Out of the total respondents 15 (37%) agreed that the training was provided by appropriate professionals who have the relevant skills and 18 respondents (45%) strongly agreed that the trainers were professional with relent skills.

The question on number 5 of the above table 5 is regarding about the induction of new employees who join the organization. 19 (47.5%) responded that they agree induction was given

to them and 3 (7.5%) strongly agreed. On the whole 22 (55%) of the employees confirmed that they were given induction while the remaining 18 (45%) respondents were not given the proper induction. Which is an indication that the company needs to work more to improve its induction system.

According to question 6 of the above table 5 employees are cross-trained. Out of the total respondents 31 (77.5%) of the respondents have agreed and strongly agreed that they were given the opportunity to be cross-trained which implies that most of the employees are encouraged to learn and practice other skills in the job they didn't initially qualify.

Regarding maintaining record about the employees' skills and training was asked on question 7 of the above table 5. Out of the total respondents 23 (57.5%), agreed that there is a record while 2 (5%) strongly agreed. This means 9 (22.5%) respondents are not sure whether there is such record or not. This is another area which the organization has to work on to improve the practice of keeping record regarding the employee's skill and training.

According to question 8 on table 5 employees were asked if they are eager in learning new skill or not. Out of the total respondents 33 (82.5) agreed and strongly agreed while 3 (7.5%) are not keen to learn new skill.

4.2.1.2 Analysis on Application of Kaizen Tools and Systems

As shown on table 6a below, respondents reflected on suggestion system stating that more than 75% agreed that improvement ideas are delivered to concerned section smoothly, properly reviewed and forwarded for successfully implementation. On the other hand, 85 % of the respondents agreed that employees were involved in total quality control activities and used statistical methods which are helpful to record and monitor quality improvements. Concerning quality circles 90 % respondents agreed that quality circle members have clear role and teams are organized around the process and products. However, only 55% respondents agreed that quality circle members celebrate kaizen achievements.

Table 6 a. Analysis on Application of Kaizen Tools

Suggestion System: Criteria	Opinion, N=40	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
There is smooth and convenient way to deliver ideas to concerned section	Frequency	1	4	4	17	14
	Percentage	2.5	10	10	42.5	35
Forwarded ideas properly reviewed by committees	Frequency	1	4	4	19	12
	Percentage	2.5	10	10	47.5	30
Forwarded ideas successfully implemented	Frequency	1	4	4	23	8
	Percentage	2.5	10	10	57.5	20
Quality Circle: Criteria						
Work-groups meet as a team daily or at least monthly.	Frequency	3	6	5	14	12
	Percentage	7.5	15	12.5	35	30
Every member of the work-groups has clear roles.	Frequency	1	3	0	22	14
	Percentage	2.5	7.5	0	55	35
Employees are multi-skilled and can cover a variety of job	Frequency	0	2	1	25	12
	Percentage	0	5	2.5	62.5	30
Cross-functional project teams used to tackle big issues.	Frequency	1	1	11	21	6
	Percentage	2.5	2.5	27.5	52.5	15
Teams are organized around processes or products	Frequency	1	1	2	20	16
	Percentage	2.5	2.5	5	50	40
Work-groups have specific measurable team objectives.	Frequency	1	2	3	24	10
	Percentage	2.5	5	7.5	60	25
Increased employee participation	Frequency	1	4	2	18	15
	Percentage	2.5	10	5	45	37.5
Group perform activities with regard to quality, productivity	Frequency	1	2	4	22	11
	Percentage	2.5	5	10	55	27.5
Teams celebrate achievements and expected success	Frequency	9	4	5	18	4
	Percentage	22.5	10	12.5	45	10
Total Quality Control						
All employees involve in total quality control	Frequency	2	2	2	19	15
	Percentage	5	5	5	47.5	37.5
Various methods used for quality control: such as statistical	Frequency	2	1	3	22	12
	Percentage	5	2.5	7.5	55	30

Statistics

	N		Mean	Median	Std. Deviation	Variance
	Valid	Missing				
Kaizen Tools: Suggestion System Composite	40	0	3.91	4.0000	0.84391	0.712
Kaizen Tool: Quality Circle Composite	40	0	3.90	3.9444	0.66017	0.436
Kaizen Tool: Total Quality Control Composite	40	0	4.05	4.0000	0.92542	0.856
Kaizen Tool Composite	40	0	3.92	3.9643	0.64170	0.412

Table 6b. Analysis on Application of Kaizen Tools

Analysis on respondents' opinion on application of kaizen tools as shown on table 6b, total quality control has a mean value 4.05/5 with standard deviation of 0.925 followed by suggestion system with a mean 3.91/5 and standard deviation of 0.843 and quality circle has a mean value of 3.90/5 with the least standard deviation of 0.660. When the construct is computed as a whole Kaizen tool has a mean value of 3.92/5 with standard deviation of 0.641.

4.2.1.3 Analysis on Application of Kaizen Pillars

Statistics

	N		Mean	Median	Std. Deviation	Variance
	Valid	Missing				
Kaizen Pillars: Housekeeping (5S) Composite	40	0	4.2650	4.4000	0.70658	0.499
Kaizen Pillars: Standardization Composite	40	0	4.1417	4.3333	0.68308	0.467
Kaizen Pillars: Waste Elimination Composite	40	0	3.9188	4.0000	0.57425	0.330
Kaizen Pillars Composite	40	0	4.0688	4.2188	0.56522	0.319

Table 7. Analysis on Application of Kaizen Pillars

From table 7 among the Kaizen pillars, housekeeping (5S) had the highest mean score (4.27/5), reflecting a strong culture of workplace organization and cleanliness. Standardization followed with a mean of 4.14, suggesting growing but still inconsistent adherence to uniform practices. Waste elimination received the lowest mean (3.92/5) with standard deviation 0.574, indicating that while efforts exist to reduce non-value-added activities, there remains room for more structured execution. Generally, the composite mean for Kaizen pillars was 4.069/5 with standard deviation 0.565, demonstrating solid foundational practices.

4.2.2 Analysis on Kaizen Achievements

Statistics

	N		Mean	Median	Std. Deviation	Variance
	Valid	Missing				
Kaizen Achievements: Quality Composite	40	0	3.9583	4.0000	0.67700	0.458
Kaizen Achievements: Productivity Composite	40	0	3.7188	4.0000	0.71653	0.513
Kaizen Achievements: Delivery Time Composite	40	0	3.9583	4.0000	0.71288	0.508
Kaizen Achievements: Profit Improvement Composite	40	0	3.8250	4.0000	0.75102	0.564
Kaizen Achievement: Safety Composite	40	0	3.8188	4.0000	0.72939	0.532
Kaizen Achievement: Employee Motivation Composite	40	0	3.6600	3.8000	0.71926	0.517
Kaizen Achievement: Unused Human Talent Composite	40	0	3.7417	4.0000	0.81120	0.658
Kaizen Achievement: Employee Empowerment and Involvement Composite	40	0	4.0500	4.1250	0.61550	0.379
Kaizen Achievements Composite	40	0	3.8430	3.9531	0.55940	0.313

Table 8. Analysis on Kaizen Achievements

Kaizen implementation has contributed to various operational improvements across both technical and social dimensions. Respondents' opinion on Kaizen achievements reflected that employee empowerment and involvement have the highest mean value of 4.05/5 with standard deviation of 0.6155 shows that increased ownership, problem solving capacity and participation in continuous improvement initiatives. Then, it followed by both quality and delivery time with

similar mean value of 3.958/5 and standard deviation of 0.677 and 0.713 respectively. Which showed that improved product quality consistency and delivery time are key indicators of operational efficiency and customer satisfaction. Profit improvement takes the next place with 3.825/5 mean value and standard deviation of 0.751. Subsequently, safety takes the following rank with 3.819/5 mean value and 0.729 standard deviation which shows as a key area of progress. Improved use of personal protective materials and decreased accident rate highlights awareness of occupational health practices. Productivity with mean value of 3.719/5 with standard deviation 0.716 shows slightly lower values indicating full potential has yet to be realized. This is probably resulted from limited scale of kaizen implementation currently concentrated within a few model areas and quality circles.

4.2.3 Analysis on Major Challenges of Kaizen Implementation

Statistics

	N		Mean	Std. Deviation	Variance
	Valid	Missing			
Major Challenges: Lack of top Management commitment Composite	40	0	3.67	0.68	0.465
Major Challenges: Employee Attitudes Composite	40	0	4.35	0.69	0.476
Major Challenges: Existing Culture	40	0	3.88	0.79	0.625
Major Challenges: Factory Layout	40	0	4.10	0.81	0.656
Major Challenges: Misconceptions about Kaizen	40	0	3.93	1.05	1.097
Major Challenges Composite	40	0	3.91	0.59	0.345

Table 9. Analysis on Major challenges of Kaizen Implementation

Despite encouraging achievements, several challenges impede full-scale companywide Kaizen implementation in Kadisco. Analysis on Table 9 shows that from major challenges lack of top management commitment rated first with a mean of 3.67/5 and deviation of 0.67. Followed by existing working culture scored a mean of 3.88/5 with a standard deviation of 0.79. Particularly, misconception of employees about Kaizen scored a mean of 3.93/5 with standard deviation of 1.05. Among other challenges, Factory layout refers to the arrangement workers, equipment and machines within a factory. Therefore, the factory layout scored a mean of 4.10/5 with a standard deviation 0.81. At last employee's attitude towards Kaizen has rated a mean value of 4.35/5 with a standard deviation of 0.69.

CHAPTER FIVE

5 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

Based on the analysis of collected data and the subsequent discussions stated in the preceding sections of the thesis the key findings are summarized as follow: -

1) Application of Kaizen tools, systems and pillars
   - The company has adopted several Kaizen tools such as suggestion systems, quality circles, and Total Quality Control (TQC)
   - Employee participation in suggestion system and quality circles was found to be moderate, indicating some awareness and involvement in continuous improvement activities.
   - Among the Kaizen pillars, 5S (Sort, Set in Order, Shine, Standardize, Sustain) was the most widely practiced, particularly in production and storage areas.
   - Standardization and waste elimination efforts were initiated but not fully sustained due to weak monitoring mechanisms and low management commitment.
   - However, the effectiveness of these tools was hindered by inconsistent follow-up, lack of motivation, and limited training.

2) Achievements obtained

   - The company reported tangible improvements in product quality and delivery times.
   - Productivity and profitability showed signs of improvement, particularly in reduced wastage and better resource utilization.
   - Improved safety, cleaner work environments, and a growing culture of teamwork and discipline were noted.

3) Major challenges encountered
   - Resistance to change among staff, limited training, and a lack of continuous awareness creation hampered full implementation.
   - Inadequate top management support and absence of strong follow-up mechanisms were major obstacles.
   - Communication gaps and lack of clear feedback on employee suggestions reduced motivation and hindered progress.

5.2 CONCLUSION

The objective of this study is to investigate the achievements and identify the challenges faced during the implementation of Kaizen principles in Kadisco Company, focusing on the application of Kaizen tools, systems and pillars, the resulting achievements and challenges.

Based on major findings, the following conclusions can be drawn,

The study concludes that while Kaizen has positively impacted several operational and cultural aspects at Kadisco, the implementation remains partial and fragmented. Strong engagement in localized quality circles and 5S practices has led to measurable gains in quality, safety, and employee involvement. However, inconsistent support from top management and gaps in standardization, waste reduction, and suggestion system responsiveness have limited broader organizational transformation.

Therefore, to fully realize Kaizen's potential, Kadisco must transition from tool-based application to a holistic, company-wide philosophy. A strong commitment from leadership, coupled with capacity-building and introducing appropriate working culture, is essential for long-term sustainability and competitiveness.

5.3 RECOMMENDATION

Finally, in view of the findings and conclusions made, the following recommendations are proposed:

1. **Strengthen Leadership Commitment**: Senior management must consistently champion Kaizen by aligning it with strategic goals and dedicating resources to support its execution.
2. **Expand Quality Circle Participation**: The number of functional quality circles should be increased, with cross-functional teams encouraged to tackle real operational issues.
3. **Revitalize the Suggestion System**: Improve employee motivation to submit suggestions by ensuring timely feedback, implementation tracking, and reward mechanisms.
4. **Intensify 5S and Standardization Practices**: Conduct regular 5S audits and develop standardized work procedures across all departments to institutionalize efficiency.
5. **Address Structural and Cultural Barriers**: Redesign workspace layout where possible to support lean flows, and initiate continuous training to shift the employees' mindsets and dispel misconceptions.
6. **Monitor and Evaluate Progress**: Establish clear KPIs for Kaizen implementation and review performance regularly to ensure alignment with improvement goals.

By adopting these recommendations, Kadisco can overcome its current limitations and establish a robust, sustainable Kaizen culture that drives continuous improvement across the organization.

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Appendix A

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATED STUDIES

COLLEGE OF BUSINESS AND ECONOMIC

Instructions to the questionnaires

This is a research on the topic "Achievements and Challenges of Kaizen Implementation in The Case of Kadisco Paint and Adhesive Industry S.C.". The research is carried out in order to fulfill the requirement of Graduate Studies of Addis Ababa University for the degree of Executive Masters of Business Administration. You have been selected as a respondent to this questionnaire because I believe the information that you will provide will be very useful in enabling me realize the objectives of my study. In answering the questions, you may be requested to put tick (✓) mark inside the box that indicates your level of agreement for each statement. I highly appreciate the fact that you have taken to fill in this questionnaire. Thank you very much.

Daniel Shigute

Part one personal data

1. Sex: Male _____ Female_____
2. Academic level

Under Grade 10 ☐

Grade 10 ☐

Grade 10 (New curriculum) or 12 (old curriculum) ☐

Complete Diploma (12+2 in old curriculum and TVET-10+2, Level I, II, III in new old curriculum) ☐

BSC/BA Degree ☐ MSC/MBA Degree ☐ Other please Specify ☐

3. Years of service: 1-5 Years: ☐ 11-15 Years: ☐
6-10 Years: ☐ Above 20 Years: ☐

Please state your level of opinion for each given statement using the following scales:

1= strongly disagree 2=disagree 3= Neutral 4= Agree 5=strongly agree

The questionnaire is divided in to three phases as described in the following

Part I- Level of Implementation

1. Training and education

No	Criteria	1	2	3	4	5
1	Training and education has been given about Kaizen before Kaizen Implementation					
2	The factory consistently gives training and education					
3	Factory provides necessary material for training and education.					
4	Training and education given by appropriate professionals having sufficient skills.					
5	New employees get indication training and attach to a mentor.					
6	Employees are cross-trained across departmental boundaries.					
7	Skills and training record are maintained for everyone.					
8	Employees became eager in learning new skills.					

2. Kaizen Tools

1		**Suggestion system**	1	2	3	4	5
	1.1	There is smooth and convenient way to deliver ideas to concerned section					

	1.2	Forwarded ideas properly reviewed by committees					
	1.3	Forwarded ideas successfully implemented					
2		**Quality control (QC) Circle/Team work**	1	2	3	4	5
	2.1	Work-groups meet as a team daily or at lease monthly.					
	2.2	Every member of the work-groups has clear roles.					
	2.3	Employees are multi-skilled and can cover a variety of job					
	2.4	Cross-functional project teams used to tackle big issues.					
	2.5	Teams are organized around processes or products					
	2.6	Work-groups have specific measurable team objectives.					
	2.7	Increased employee participation					
	2.8	Group perform activities with regard to quality, productivity					
	2.9	Teams celebrate achievements and expected success					
3		**Total quality control (TQC)**	1	2	3	4	5
	3.1	All employees involve in total quality control					
	3.2	Various methods used for quality control: such as statistical					

3. Kaizen Pillars: the extent in which housekeeping, standardization and waste eliminations

		Criteria	1	2	3	4	5
1		**Housekeeping (5S)**					
	1.1	**Sorting:** The factory properly differentiate between necessary and unnecessary item					
	1.2	**Set in order:** All products, equipment, tools and work environment properly cleaned					
	1.3	**Shine:** All products, equipment, tools and work environment properly Cleaned					

	1.4	**Standardize:** SS working for sustaining SS within the factory					
	1.5	Sustain: Factory efforts for sustaining SS within the factory					
2		**Standardization**					
	2.1	To undertake all works within the factory there is standard. For example: quality standard, time to complete certain job					
	2.2	Inspection made by the factory to assure works are done according to Standard					
	2.3	Standards are improving from time to time: for example, works done less than previously taken time					
3		Waste elimination					
	3.1	Process waste reduced by at least 20%0, i.e scrap, rework, order cycle time, process steps, transport, reject etc.					
	3.2	Inventory and work in progress for almost everything is the lowest in the industry.					
	3.3	Over production reduced					
	3.4	New process is designed to maximize value-added activity					
	3.5	Waiting without work removed					
	3.6	Unnecessary motions are reduced					
	3.7	Equipment breakdown are virtually eliminated.					
	3.8	Human talents are fully used					

Part II- Result achieved by implementing Kaizen

No		Criteria	1	2	3	4	5
1		**Quality**					
	1.1	The company has made the key mind-shift from quality defect detection to active prevention.					
	1.2	The defect rate has been reduced.					
	1.3	Employees are now responsible for inspecting their own work and know exactly the standards they have to meet.					
	1.4	Employee use the 'SS-why' technique to solve problem					
	1.5	Product produced as per pre-established standards.					
	1.6	Customer complaints reduced					
2		**Productivity**	1	2	3	4	5
	2.1	Efficient utilization of resources improved:- it is possible to manufacture by using less inputs than before.					
	2.2	Economic of scale improved:- which is producing more in order to decrease cost of production.					
	2.3	In factory there is change in new technology.					
	2.4	Change in technical efficiency: In factory there is improvement in utilization of factory equipment, tools etc.					
3		**Profit improvement**	1	2	3	4	5
	3.1	Costs are reduced to produce products, in comparing to previous cost.					
	3.2	Sales increased.					
	3.3	Expenses decreased.					
4		**Delivery time**	1	2	3	4	5
	4.1	Idle time is decreased					

	4.2	Production capacity increased					
	4.3	Reduction in manufacturing lead time					
5		**Safety**	1	2	3	4	5
	5.1	Decrease number of accidents, injuries.					
	5.2	Machine breakdown decreased.					
	5.3	Safety protection materials are strictly used.					
	5.4	Health and occupational safety of workers improved.					
6		**Employee motivation**	1	2	3	4	5
	6.1	Absenteeism decreased.					
	6.2	Improvement ideas increased.					
	6.3	Employee complaint decreased.					
	6.4	Promotions and career development system introduced.					
	6.5	Policies of compensation and benefits implemented.					
7	No	**Unused human talent**	1	2	3	4	5
	7.1	There is a room for potential or ability of team members.					
	7.2	Many improvement and innovative ideas have been submitted.					
	7.3	Submitted ideas have been discussed properly.					
8	No	**Employee Empowerment and Involvement**	1	2	3	4	5
	8.1	Every jobholder known his or her own unique contributions.					
	8.2	Employees are given full responsibilities for their own work.					
	8.3	Teams set and meet their own improvement objectives.					
	8.4	Teams collect data on performance and use this with their manager to make continuous improvements.					

Part III- Major Challenges of Kaizen Implementation

No	Criteria		1	2	3	4	5
1		**Lack of top Management commitment**					
	1.1	Management plans the acquisition of the resources required for improvement programs (financial resources, physical spaces, time)					
	1.2	Role & commitment of top management, regularity of 5-S activity, implementation of training, knowledge, awareness of executive & supervisors					
	1.3	5-S Monthly progress review meeting Minutes &Audits					
	1.4	Evidence of training conducted for top management					
	1.5	Policies, objectives and structure of Kaizen events are established					
	1.6	Management accept suggestion from employees on improvement, and implement those suggestions that are viable					
	1.7	Introducing new initiatives for continuous improvement					
	1.8	Organizing trainings on continuous improvement					
	1.9	Implementing continuous improvement tools					
	1.10	Motivating employees to bring new improvement ideas					
2		Employee attitudes					
	2.1	I prefer working in neat, clean and safe work environment					
	2.2	I would like to implement innovations my work environment					
	2.3	Implementing the skills acquired from Kaizen training transforms or improves my organizational/enterprise's performance and effectiveness					
	2.4	Applying Kaizen strategies will transform and change the technological status of enterprises/companies					
	2.5	The best way to make our country internationally competitive is through applying the Kaizen strategy of industrial development					
3		To what extent does the existing system/culture allow every employee to involve in the improvement of quality and					
4		Well-developed factory structure and layout					
5		Misconceptions (misunderstanding) about kaizen					

Thank you for the participation!