

A STUDY ON IMPLEMENTATION OF 5S PRACTICES POWERICA PRIVATE LIMITED COMPANY

Submitted in partial fulfillment of the requirements for the award of

BACHELOR OF COMMERCE

by

ABINAYA S
Register No:41740001



SCHOOL OF MANAGEMENT STUDIES

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

**Accredited with Grade "A++" by NAAC | 12B Status by UGC | Approved by AICTE
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119**

April 2024



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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of “**ABINAYA S (REG NO: 41740001)**” who carried out the project entitled “**A Study on implementation of 5S Practices in Powerica Private Limited Company**” under my supervision from January 2024 to March 2024.

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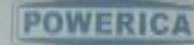
Submitted for Viva voice Examination held on _____

Internal Examiner

External Examiner

COMPANY LETTER

POWERICA LIMITED



A PROMISE FOR POWER

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TO WHOMSOEVER IT MAY CONCERN

This is with reference to your request letter received regarding permission to do an Project in M/s. POWERICA LIMITED, We are pleased to inform you that your request has been accepted, we hereby give permission to M.S.S Abinaya doing B.Com Final year SATHYABAMA UNIVERSITY (Deemed to the University) Project to do from an Project in our Company from Jan to March 2024.

For POWERICA LIMITED

Authorised Signatory

Offices at Ahmedabad, Aurangabad, Bangalore, Bhopal, Chennai, Coimbatore, Goa, Guwahati, Kollam, Kottayam, Madurai, Malabar, Mysore, Nagpur, Nashik, Pune, Secunderabad, Rajahmundry, Vijayawada, Visakhapatnam.



DECLARATION

I **ABINAYA S (Reg no. 41740001)** hereby declare that the Project Report entitled “**A Study on implementation of 5S Practices in Powerica private limited company**” done by me under the guidance of **Dr.TR. KALAILAKSHMI M.A., M.B.A., M.Phil., Ph.D** is submitted in partial fulfillment of the requirements for the award of Bachelor of Commerce

DATE:

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PLACE: CHENNAI

SIGNATURE OF THE CANDIDATE

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I am pleased to acknowledge my sincere thanks to Board of Management of **SATHYABAMA** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I convey my sincere thanks to **Dr. G. Bhuvaneswari, MBA., Ph.D., Dean - School of Management Studies** and **Dr. A. Palani, M.Com., M.Phil., M.B.A., Ph.D., Head - School of Management Studies** for providing me necessary support and details at the right time during the progressive reviews.

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I wish to express my thanks to all Teaching and Non-teaching staff members of the **School of Management Studies** who were helpful in many ways for the completion of the project.

ABINAYA S

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ABSTRACT

5S is a systematic technique used by organizations come from five Japanese words; Seiri (Sort), Seiton (Set in order), Seiso (Shine), Seiketsu(standardize) and Shitsuke (sustain). This system helps to organize a workplace for efficiency and decrease non value added activities and optimize quality and productivity through monitoring an organized environment. This paper aims to review previous studies about benefits of 5S Implementation and its efficiency in organizations. The results show that 5S is an effective tool for improvement of organizational performance, regardless of organization type, size, its production or its service. Consequently, 5S technique would strongly support the objectives of organization to achieve continuous improvement in performance and productivity.

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CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

5S is a system for organizing spaces so work can be performed efficiently, effectively, and safely. This system focuses on putting everything where it belongs and keeping the workplace clean, which makes it easier for people to do their jobs without wasting time or risking injury.

S Translation The term 5S comes from five Japanese words:

- Seri
- Seaton
- Seis
- Seekers
- Shinseki

English, these words are often translated to

- Sort
- Set in Order
- Shine
- Standardize
- Sustain

Each S represents one part of a five-step process that can improve the overall function of a business.



1.2 INDUSTRY PROFILE

History and evolution of Generators

Michel Faraday and Hippolyte Pixii were pioneers who invented early machines like generator. There are following stages of evolution of Generators.

- Electrostatic generators.
- Principle of electromagnetic induction.
- Invention of Dynamos
- Alternators and their evolution.

Electrostatic Generators

Before the connection between electricity and magnetism was discovered Electrostatic generators were invented.

They were never used for commercial power generation and were left due to inefficiency and difficulty.

Principal of electromagnetic induction

1. The scientific principle on which modern generators work was discovered by Michel.
2. Faraday, he gave first electrical demonstration of electromagnetic induction in August 1831.

Dynamos

- Dynamos use electromagnetic principles to convert mechanical rotation into a pulsating direct electric current through use of a commutator.
- 1st dynamo was built by Hippolyte Pixie in 1832.

According to mechanical work input generators can be classified. As engine generators, human powered generators, turbine generators and wind mill generators.

Mainly used generators are engine generators. They are also known as Gensets. They use engine, which provides mechanical energy by use of chemical energy provided by different chemical as Gasoline, Propane, Diesel fuel and Natural gas.

They can further be classified into 3 main types.

1. Standby Generators
2. Portable Generators
3. Commercial Generators

Alternators

After that alternating current generators were invented.

- 1st TWO PHASE AC GENERATOR was built by J.E.H.Gordon in 1882.
- In 1886 1st Public demonstration of ALTERNATOR SYSTEM was given.
- Nikola Tesla done very useful work in evolution of alternators.
- Lord Kelvin and Sebastian Ferranti also done some work.

Types of Electric Generators

Electric generators types depend on the type of generating Equipment employed, the electric energy produced is either direct current (DC) or alternating current (AC)

- AC Generators are classified as single-phase or polyphase. A single-phase generator is usually limited to 25 KW or less and generates AC power at a specific utilization voltage. Polyphase generators produce two or more alternating voltages (usually two, three, or six phase)
- DC Generators are classified as wither shunt, series, or compound-wound. Most DC are the compound-Wound type. Shunt generators are usually used as battery chargers and as exciters for AC generators. Series generators are sometimes used for street lights. The emf induced in a DC generator coil is alternating. Rectification is needed to direct the flow of current in one direction. The generator rotating commutator provided the rectifying action.

Commercial Generators:

In area where power supply is intermittent or lacking as in THIRD WORLD provincial areas, generators can also be set up to provide additional power.

Standby Generators:

- These are large, often permanent units often stationed outside a building and like to provide backup power in case the in electricity switches off.
- They can sense when a power interruption has occurred and automatically start to provide emergency power.

Portable Generators:

- These generators are designed to be transported whether on cart trailer or by hand where there is no utility of power.
- They are capable of providing up to 1000 kilowatts of power. They use either diesel natural gas, gasoline or propane as fuel

Uses of Electrical Generator:

- Hybrid electric vehicle (HEV) drive system, automotive starter generators, aircraft auxiliary power generation, wind generators, high speed gas turbine generators.
- An A.C. generator, or 'alternator' is used to produce A.C. voltages for transmission via the grid system or locally, as portable generators.

1.3 COMPANY PROFILE

POWERICA Limited, was established in the year 1984 under the dynamic leadership of visionary Mr. Naresh Oberoi. It is also promoted by Bharat Naresh Oberoi and Kharatiram Kharak Puri, who have been involved in the diesel generator set business for several decades.

Powerica has evolved to become a leading end-to-end power solution provider in conventional diesel-based, standby, and prime power applications. Dynamic growth across verticals has also led Powerica to have a strong footprint in renewable energy projects.

Powerica's power solutions are provided through its expertise in manufacturing, marketing, installation, commissioning, after-sales servicing & maintenance contracts. All auxiliary systems acoustic enclosures, fuel & exhaust systems and power & control systems that are required for a complete diesel generator set are manufactured in our factories.

Since its inception, Powerica formed a strong alliance with Cummins, a global pioneer in engine manufacturing. Powerica executes an estimated 1200 MW power with Cummins Diesel Engines annually with the supply & commissioning of over 7,000 DG Sets. Currently, Powerica markets the complete range of engines manufactured by Cummins from 7.5kVA to 2750kVA in diesel.

Our relationship with Cummins India Ltd. defines us to be the exclusive after-sales service providers. This includes the sale of spare parts for all diesel generator sets powered by Cummins engines installed across the Indian states of Karnataka, Maharashtra, Andhra Pradesh, Pondicherry and Tamil Nadu. These services are also available for all non-DG set applications powered by Cummins engines.

Powerica also has a lineage of pre-purchase consultancy, design engineering, sale, installation, lease, operation and maintenance of Medium Speed Large Generator (MSLG) sets.

After 22 years of vast power provision, Powerica set forth to spread its wings in the renewable energy sector in 2006.

With its roots set in using elite technology, Powerica opted to work with Vestas - the global leaders in wind energy. In 2008 Powerica commissioned its first Wind Power project becoming an Independent Power Producer (IPP).

We commenced our EPC business for in-house Powerica IPP projects in 2012. Starting 2015, Powerica has emerged to become an Engineering Procurement and Construction (EPC) developer for other IPP customers.

DIESEL GENERATING SETS:

Powerica is the leading Original Equipment Manufacturers (OEMS) in India for Cummins India Ltd., the global leaders in the design, manufacture, distribution and servicing of diesel engines. These DG sets comply with the requirements of all local statutory norms and have unmatched longevity.



WIND POWER:

Our wind power division broadly operates as Independent Power Producers (IPP) and Wind Farm Developers apart from integral services such as Wind Research Analysis (WRA), Land and Right of Way (ROW), Power Evacuation, Approvals and Permits & Balance of Plant (BOP).



100,000+

GENERATORS MANUFACTURED

1,200+

MW EXECUTED ANNUALLY WITH CUMMINS DIESEL ENGINES

1,500+

OUR STRENGTHS:

1. Associations:

Trusted and long-term relationship with global leaders such as Cummins India Ltd. for 34 years & Vestas for 10 years

2. Epicenter of Advancements:

Our manufacturing centers in Silvassa and Bangalore produce DG sets designed to be rugged and dependable with best-in-class fuel economy. They're focused on industry-leading maintenance intervals and ease of service.

3. Dynamic Capacity:

Among the largest in the country, our plants span over 33,500 sq.mtr. Equipped with a skilled workforce of close to 1500 employees, it's a vastly equipped powerhouse which can be ramped up to double its current capacity

4. Certified Ethical Standards and Eco-Adaptiveness:

Powerica successfully attains all codes including the strict emissions standards of the Central Pollution Control Board of India (under MOEF). Our expert in-house team along with Cummins India, are firmly certified for every applicable rating.

5. Exclusively Engineered Solutions:

Pursuing innovation, we developed the containerized diesel generator for the rental & construction industry. Our promise for power, leads us to offer a no-installation, ready-to-use solution which is also easily removable for immediate portability among sites.

6. CRISIL Rating:

AA CRISIL rating that permits flexibility in interest and soft costs on loan.

7. Critical Project Expertise:

Leading expertise in high-value, complex and critical turnkey installations of DG sets and Medium Speed Large Generators in the country.

8. Unleveraged Balance Sheet:

Low leveraged balance sheet figures with minimal debt exposure.

9. Wind Farm Development & Efficiency in BOP:

Expertise in wind farm development resulting in lower project costs and higher ROI. An independent and dedicated internal team is committed to achieve global standards in executing and servicing BoP of the wind farm.

10. Tax Benefits and incentives:

Our wind farm business receives benefits and incentives in the form of accelerated depreciation, tax holiday under section 80-IA and generation-based incentives (GBI).

SUSTAINABILITY:

Global warming and diminishing natural resources demands action not only from government and individuals, but from businesses as well. At Powerica, we ensure that every action we do leads to a cleaner, healthier and safer environment.

Regulations, such as the strict emissions standards that the Central Pollution Control Board Of India (under MOEF) has introduced to reduce harmful pollutants/noise from being released into the environment, are met successfully at Powerica. The expert in-house team, along with Cummins India, have successfully tested and received certifications for all the applicable ratings.

1.4 Objective of this study:

The objectives of this project are:

1. To study and identify problems at work
2. To implement 5S practises among the employees
3. To identify the challenges that improvement after implementing

1.5 Need for Study:

- In today's competitive environment, smart companies are fueling growth through leaner operations. Adopting lean practices, which focus on the elimination of waste throughout the enterprise, create cost savings while establishing an environment of continuous improvement.
- Many manufacturing facilities have opted to follow the path towards a "5S" workplace organizational methodology as part of a continuous improvement program or lean manufacturing process. The 5S system is part of Toyota's Lean Manufacturing methodology designed to reduce waste within a facility.

1.6 SCOPE OF THE STUDY

- 5S relies on the principles of sort, straighten, shine, standardize, and sustain to create a clean and organized work environment that will support the organization's improvement goals.
- 5S is an approach to productivity improvement that is equally applicable to all business processes including those in manufacturing, services and administration. 5S relies on the principles of sort, straighten, shine, standardize, and sustain to create a clean and organized work environment that will support the organization's improvement goals.
- experts will train, facilitate and guide your dedicated 5S team during your 5S project. Training is held in a workshop format and is designed to teach participants how to effectively implement the 5S methodology within their work areas. The course combines classroom theory and examples with practical experience applying the 5S methodology to their real-life work areas in the offices, labs, manufacturing areas, warehouses and showrooms. All of this is done under the guidance of our senior consultants.
- After training is complete, and your 5S team tackle the 5S implementation across the entire organization. In this 5S program, improvements in their work areas. Ownership of the 5S process is instilled in each employee – leading to strong commitment for its enduring success. experts support this project with on-site consultants to ensure that the use of the tools is applied effectively, and to ensure that the gains are sustainable.

CHAPTER 2

REVIEW OF LITERATURE

Breyfogle (2008) "describes that there were four activities in the Japanese system. These activities, each beginning with the letter S, were:

- Seiri (sort)
- Seiton (set in order)
- Seiso (shine)
- Seiketsu (standardize)
- Shitsuke [Sustain]

After that, a fifth activity was added which called Shitsuke (sustain), they are now known as 5S.

Based on five Japanese words that begin with 'S', the 5S focuses on effective work place organization and standardized work procedures. 5S classifies the work environment, reduces waste and non-value activity while improving quality, efficiency, and safety. These processes can increase morale, create positive impressions on customers, and increase efficiency and organization. 5S makes employees feel better about their work environment. This improvement leads to less waste, better quality and reduced lead times. Any of these benefits will make a company more profitable and competitive in the market place. Before a company implements the 5S, they should know what 5S are and why 5S. A lot of companies feel that they should do 5S first in order to go lean. Some proven reasons for this: 5s is clear, easy and gets people's attention. Yet, there is no rule to ask where to start. Begin 5S implementation when there is a reasonable point within a company. Let employees understand what the purpose is and how to follow it. Do not use 5S just because everyone else is doing it

5S is not a trend towards fashion When a company wants to implement 5S, just like anything new for the company, a leader should describe what 5S is and how it will be utilized"

Arash Ghodrati (2012) "5S system is a method using for set up and keeps quality of working environment in an organization. Such organization can organize and manage companies which require less space, human effort, time, quality and capital to make products with less faults and make a workplace well ordered, disciplined and clean. 5S is a system to decrease wasting and optimize quality and productivity via monitoring an organized environment and use visual evidences to obtain more firm results. The columns of 5S are sort (Seiri), set in order (Seiton), shine (Seiso), standardize (Seiketsu), and sustain (Shitsuke). In routine activity of every organization, daily works that support company and neatness are fundamental to an efficient activities flow. 5S is an idea that reshapes how you think about a workplace and provides a foundation for significant improvement but it is not simply about cleaning up a shop floor. The initial stage in 5S is deciding what is essential in the work environment and what is not. The second stage is put the things where they provide the best support for the functions. The third stage is inspection, repairing and cleaning things to find and remove the root causes of damage and dirt. The fourth stage is team working and the members must have consensus on normal and new way of work. The fifth stage is personal discipline to follow the standards and to perform the personal characteristics".

Norzima Zulkifli (2012) "5S is a systematic technique used by organizations comes from five Japanese words; Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize), and Shitsuke (sustain). This system helps to organize a workplace for efficiency and decrease wasting and optimize quality and productivity via monitoring an organized environment. It also provides useful visual evidences to obtain more firm results. There is a real need for empirical studies in field of new management systems and their impact on company's performance. As importance role of continuous improvement in today's organizations, and lack of sufficient evidence to show the positive impact of 5S on organizational performance, this paper aims to determine performance factors and characteristics in industrial organizations and identifying the

effectiveness of 5S implementation on organizational performance as well. Surveying method is used and data collection is done by distributing questionnaire among five target organizations which have implemented 5S techniques. The target organizations are chosen from different industries and diverse field of work. The results of this research obtained from a comparative measurement of organizational performance before and after 5S implementation. The results show that 5S is an effective tool for improvement of organizational performance, regardless of organization type, size, its production or its service. Consequently, 5S techniques would strongly support the objectives of organization to achieve continuous improvement and higher performance"

R. A. Pasale, Prof. J. S. Bag (2013) " With the changing techno-economic scenario around the entire world, the market has turned from seller to buyer type. The main objective of every organization is to satisfy the stated and implied needs of the customers. To provide quality product within stipulated time it is necessary to improve the working conditions. In order to improve the performance of employee, organization has to create interesting working environment. A pleasant condition can help improving performance and motivation on the workers. 5S is a system in which to reduce work and optimise productivity and quality through maintaining an orderly workplace. The benefit of good workplace include the prevention of defects; prevention of accidents; and the elimination of time wasted for searching tools, documentation and other ingredients of manufacture. The 5S is the methodology of creation and maintaining well organized, clean, high effective and high quality workplace. Its result is the effective organization of the workplace, elimination of losses connected with failures and breakdowns in machines, improvement of the quality and safety of work, cleanliness and neatness of the organization.

Daniel Grecu (2010) "Many manufacturing facilities have opted to follow the path towards a "5S" workplace organizational and housekeeping methodology as part of continuous improvement or lean manufacturing processes. 5S is a system to reduce

waste and optimize productivity through maintaining an orderly workplace and using visual cues to achieve more consistent operational results. The term refers to five steps - sort, set in order, shine, standardize, and sustain - that are also sometimes known as the 5 pillars of a visual workplace. 5S programs are usually implemented by small teams working together to get materials closer to operations right at workers' fingertips and organized and labeled to facilitate operations with the smallest amount of wasted time and materials. The 5S system is a good starting point for all improvement efforts aiming to drive out waste from the manufacturing process, and ultimately improve a company's bottom line by improving products and services, and lowering costs. Many companies are seeking to making operations more efficient, and the concept is especially attractive to older manufacturing facilities looking to improve the bottom line by reducing their COStS.

SARVIN (2008) "A '5S' driven workplace enhances productivity and competitiveness and fosters a productivity culture through a continual process of identifying, reducing and eliminating MUDA (Japanese for Waste). '5S' helps to:

- (a) Identify, Reduce and Eliminate MUDA
- (b) Organized & World Class Gemba (Workplace)
- (c) Enhancement in Productivity & Competitiveness
- (d) Better Living and improved work life

There are many organized methods to do so one of them is called '5S'. 5S" is a tool with Japanese roots, focused on fostering and sustaining high quality housekeeping. The physical environment determines ones behaviour. On the other hand, a similar behavioural pattern among group of people defines culture. Thus, there is a strong link between culture and physical environment.

Extrapolating, one can also find a strong link between the physical. Many people think that housekeeping should be done by a cleaners and sweepers at their workplace. They don't realize that they too play an important part in keeping their workplace clean.

More importantly, they don't know how much they can gain for themselves by just practicing good housekeeping.

Everything that the people do at their workplace is very important to overall cleanliness, orderliness and safety of the workplace. Clean working environments where everything is properly placed and where clear instructions are readily available tend to be a safe place to work in. The work environment also determines how fast and how efficiently work could be done. Good produce in a clean and well organized environment also tends to be of better quality. In a company where 5S are seriously practiced, the numbers of defect products will be relatively lower than that of a disorganized company. Productivity will therefore be higher. By practicing 5 S at the workplace, it's not only produce quality, but also actually help to ensure the safety of that workplace. 5S is a set of techniques providing a standard approach to housekeeping. It is often promoted as being far more than simply housekeeping and some of the elements described below

certainly move into broader areas

Liker and Hoseus (2008) "Companies throughout the world, in search of competitive strategies, deliberately choose programmes as a means to engage their employees in improvement processes. 'Some have used Six Sigma .., while others have concluded they need to "lean out processes" ..using simpler concepts of pull and flow. Frequently these programmes are effective in achieving improvements such as driving down costs, improving quality and increasing delivery speed and reliability. Unfortunately there is usually something missing in these efforts. 'Many companies have become frustrated with kaizen events and Six Sigma projects that yielded great short-term results but had no sustainability' (Liker and Hoseus 2008).

This section investigates specific relationships of 5S implementation aimed at identifying implementation success factors".

Harsha Lingareddy, G.Sahitya Reddy, K.Jagadeshwar (2013) "Implementing ISO 9001:2008 alone in an organization does not make a way to obtain Total Quality Management System;

Organization also needs to adopt several Lean tools to achieve TQM. In the path of implementation of the Total Quality Management on the operational level, 5S will become the first step. 5S is a Japanese concept for increasing quality and productivity. 5S will become the essential tool for acquiring continuous Improvement in the organization. In any organization improvement begins with 5S. 5S is a Lean Tool which is implemented for obtaining a clean, effective and pleasant work environment. 5S is the first step of approaching the Lean Manufacturing. 5S is a strategy that delivers results by a systematic approach of planning and organizing the activities. 5S is a philosophy rooted from Japan and branched into other countries. 5S is an acronym for the following Japanese terms:

SEIRI [Sort]

SEITON [Set in order]

SEISO [Shine]

SEIKETSU [Standardize]

SHITSUKE [Sustain]

2. 5S Systematization:

5S states that:

Dr. Joseph M. Juran, in his book describes, "Quality as fitness for use. He discusses that quality as conformance to requirement and non-quality as nonconformance. Quality can take many forms. Quality can be summarized as terms of an excellent product and service. There are three term in quality, Quality of design, Quality of conformance, and Quality of nonconformance. Quality of design means the product has been designed to successful fill a customer need, real or not perceived. The design should be an excellent product or service that fulfills or exceeds customer expectation. Quality conformance means, conformance to requirement. Refers to the manufacture o the product or the service that meet the specified requirement set by the consumer. Quality performance, means, that the product or service performs its intended function as identified by the consumer"

In the Webster's New World Dictionary "quality is defined as physical or nonphysical characteristic that constitutes the basic nature of a thing or is one of its distinguishing features.

Shewhart, said that there are two common aspects of quality, one of these has to do with the consideration of the quality of a thing as an objective reality independent of the existing of man.

The other has to do with what we think, feel or sense as a result of the objective reality. This subjective side of quality is closely linked to value. It is convenient to think of all matters related to quality of manufactured product in terms of these three functions of specification, production and inspection. (Grant and Leavenworth, 1988). Quality is fitness for use, (Juran, 1989). Quality is conformance to requirements (Crosby, 1979) and quality should be aimed at the needs of the

In order to achieve the strategic fit as mentioned and discussed in Section 3.1 and Section 3.2, the various approaches such as 5S practices, logistics optimization and value stream mapping need to be adopted in the supply chain. Many manufacturers have adopted 5S practices for maintaining an orderly workplace to achieve significant organizational benefits such as productivity, quality enhancement, cost optimization, waste elimination, eliminating unplanned downtime, improving the workplace, eliminate searching time of items at workplace, eliminating difficulties in using and returning of items and exercising enhanced inventory management, employee empowerment and delivery adherence (Bayo-Moraines et al., 2010 and Randhawa and Ahuja, 2017). It is made from five Japanese words starting with letter S: Seri (sort), Seaton (set in order), Seis (shine), Seekers (standardize), and Shinseki (sustain) and is essential for total quality environment (Osaka, 1991)

- Based on the results of interviews with employees at PT. Putra Multi Cipla Technikon showed that there was no 5S training given by the company and there was no evaluation from top management in the form of direct reprimands or self-

assessment of 5S activities. 5S training is the responsibility of management to provide the resources needed for employees to understand 5S activities [39]. The development, implementation, and continuous monitoring of 5S implementation is the responsibility of management which to implement 5S, the initial step begins by providing workers with appropriate training on the various elements and benefits of 5S.

- One of the main weaknesses of current PMS used by organizations is that a narrow, unit-dimensional focus is normally adopted. At the same time, management has to continuously strive to imbibe innovative tools (Randhawa and Ahuja, 2017) and techniques in organizations in order need to beat their competition with superior operations using its people, assets and technologies to compete more effectively in the marketplace. Despite these pressures, few organizations appear to have systematic processes in place to ensure that their PMSs continue to reflect their environment and their strategies.
- Faced with the uncertainties, industries work to promote their production system through a better production management, because of the dramatical changes, in the later part 20th century, of the globally manufacturing system (Ahuja and Randhawa, 2017). However, the areas of scheduling and planning are particularly important for the production due to the times and flexible use of the production area (Bauman and Fomin, 2018)
- Based on the results of interviews with employees at PT. Putra Multi Cipla Teknikon showed that there was no 5S training given by the company and there was no evaluation from top management in the form of direct reprimands or self-assessment of 5S activities

5S initially based on the Japanese acronyms of seiri (organization), seiton (neatness), seiso (cleaning), seiketsu (standardization) and shitsuke (discipline), is used as a

platform for developing an integrated management system by the parallel use of total productive maintenance (TPM) (Bamber et al., 2000).

Osada (1991) refers to 5S as the five keys to a total quality environment. 5S is a system to reduce waste and optimize productivity and quality through maintaining an orderly workplace and using visual cues to achieve more consistent operational results. The practice of 5S aims to embed the values of organization, neatness, cleaning, standardization and discipline into the workplace basically in its existing configuration, and it is typically the first lean method implemented by firm.

. (2008) make a distinction between 5S as a philosophy or way and 5S as a technique or tool by comparing the frameworks provided by Osada (1991) and Hirano (1995) respectively. From their study, they conclude that 5S tends to be recognized as a philosophy in Japan, but in the other hand it is likely to be considered as a technique or tool in the United Kingdom and United State of America. Osada (1991) views 5S as a strategy for organizational development, learning and change, whereas Hirano (1995) considers 5S to be an industrial formula that differentiates a company from its competitors.

A common definition of 5S in the West is housekeeping (Becker, 2001; Chin and Pun, 2002; Ahmed and Hassan, 2003; Eckhardt, 2001). In the West both 5S and TPM are sometimes disregarded or at least underutilized (Douglas, 2002). A framework of applying 5S within a business (as appose to a personal philosophy of way of life) was first formalized in the early 1980s by Takashi Osada (Ho et al., 1995).

The practice of 5S aims to embed the values of organization, neatness, cleaning, standardization and discipline into the workplace (Osada, 1991). In Japan the 5S practice was initiated in the manufacturing sector and then extended to other industries and services sector. The Toyota Production System provides a well-known example of 5S principles in practice, the early versions were based on 3-S this, became 4-S (Ohno, 1988).

Boeing in the USA pursues 5S as a world-class strategy (Ansari and Modarress, 1997). Even with these prestigious and complex examples it appears that many researchers and practitioners have difficulty going beyond the simplest 5S concept. This is suggested by Hyland and others where they believe that Australian manufacturing firms have only a basic perception of the importance and the potentiality of 5S (Hyland et al., 2000). These authors found of ten continuous improvement tools they investigated the usage and perceived importance of 5S was lowly ranked.

Therefore, we can say that there is no consensus about the scope of 5S. Much of Western literature still acknowledges 5S as housekeeping (Ahmed and Hassan, 2003; Becker, 2001; Chin and Pun, 2002; Eckhardt, 2001). However, 5S is more frequently framed in the “lean” philosophy (James-Moore and Gibbons, 1997; Hines et al., 2004; Kumar et al., 2006), since it encourages workers to improve their working conditions.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. METHODOLOGY

Research is defined as careful consideration of study regarding a particular concern or problem using scientific methods. According to the American sociologist Earl Robert Babbie, “Research is a systematic inquiry to describe, explain predict, and control the observed phenomenon. It involves inductive and deductive methods”.

3.2 RESEARCH DESIGN

Research design is the framework of research methods and techniques chosen by a researcher. The design allows us to home in on research methods that are suitable for the subject matter and set up the study up for success. The design of a research topic explains the type of research. The design used for studying the Work life balance of employees in the workplace is **Descriptive research**.

Descriptive research is usually defined as a type of quantitative research, though qualitative research can also be used for descriptive purposes. The research design should be carefully developed to ensure that the results are valid and reliable. In a descriptive design, a researcher is solely interested in describing the situation or case under their research study. It is a theory-based design method which is created by gathering, analyzing, and presenting collected data. This allows a researcher to provide insights into the why and how of research.

3.3 SOURCES OF DATA

The study is based on both primary data and secondary data. The primary data collected through well-framed and structured questionnaire to elicit the well-considered opinion of employees in POWERICA PRIVATE LIMITED COMPANY. Random sampling method has been used to collect the responses from the employees in the company.

3.4 AREA OF STUDY

The Employees working in POWERICA PRIVATE LIMITED COMPANY have been selected by adopting sampling technique.

3.5 SAMPLING

Convenience sampling is a non-probability sampling technique where subjects are selected because of their convenient accessibility and proximity to the researcher. Convenience sampling, otherwise known as availability sampling, is a method that relies on data collection from population members who are conveniently available to participate in study. The researcher using such a sample cannot sufficiently generalize about the total population from this sample because it would not be representative enough. A sample of 120 employees has been selected using a convenient sampling method.

Sampling Design

Sampling: convenient sampling method

Sampling Size: 120 employees

Tool Used for calculations: SPSS

3.6 PERIOD OF THE STUDY

The present research study is related to “ Study on implementation of 5s Practices in the survey lasted 3 months.

3.7 DATA COLLECTION

This study is based on questionnaire methods. Primary data were collected from both men and women respondents in POWERICA PRIVATE LIMITED COMPANY. The total population was 700. The total number of sample size was 120.

3.8 METHOD OF DATA COLLECTION

Primary data

The primary data is that data which is collected fresh or first hand, and for first time which is original in nature. The Primary data has been collected from Personal Interaction with employees. The primary data has been collected from 121 respondents.

Secondary data

The secondary data are those which have already collected and stored. Secondary data easily get those secondary data from records; annual reports of the company etc. will save the time, money and efforts to collect the data. The secondary data have been collected from books, journals, browsing through the internet and so on.

3.9 ANALYSIS:

Analysis can be defined as a comprehensive process involving the evaluation and scrutiny of various elements in a project. These elements may include costs, timelines, resources, and risks. The objective here is to determine potential impacts on the overall goals and objectives.

PERCENTAGE ANALYSIS:

It is derived from a Latin word that means “by hundred”. To calculate the percentage of any number, the number is divided by the whole and multiplied by 100. It is used in data analysis as it helps in finding information on discrete categories and collating statistical data.

It is a mathematical concept that is often used to express findings and compare results in scientific studies. Percentages can be used to represent relative decrease as a function of relative increase, and they can also be used to calculate successive percents of increase or decrease

Percentage analysis refers to a special kind of ration. Percentage is used for making comparisons between two or more series of data. Percentage is used to describe relationships.

$$\text{Percentage} = \frac{\text{No. of Respondents}}{\text{Total No. of Respondents (121)}}$$

CHAPTER 4

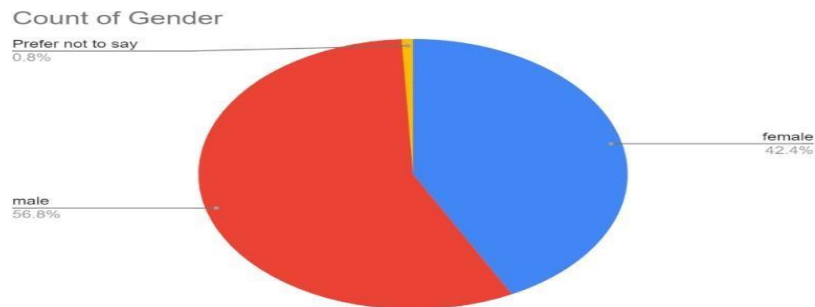
DATA ANALYSIS AND INTERPRETATION

4.1 PERCENTAGE ANALYSIS

TABLE – 4.1. GENDER

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Male	64	56.8%
Female	46	42.4%
Prefer not to say	10	0.8%
TOTAL	20	100%

CHART – 4.1 GENDER



INTERPRETATION:

From the above table it is interpreted that 56.8% of the respondents are male and 42.4% are female.

INFERENCE:

Majority of the respondents (56.8%) are Male.

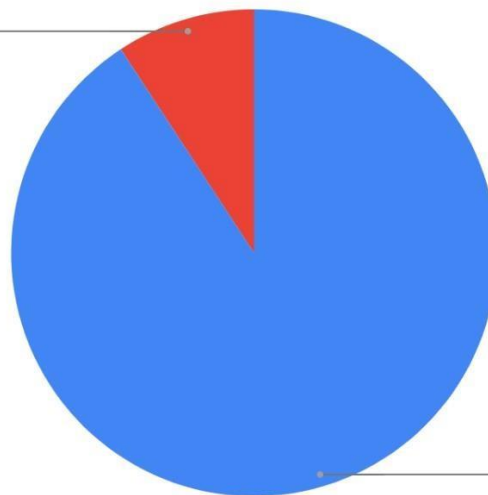
TABLE – 4.2 Martial status

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
MARRIED	18	9.2%
UNMARRIED	102	90.8
TOTAL	120	100%

CHART – 4.2 Martial status

Count of Martial status

married
9.2%



unmarried
90.8%

INTERPRETATION:

From the above table it is interpreted that 9.2% of the respondents are married and 90.8% of the respondents are unmarried

INFERENCE:

Majority of the respondents (90.8%) are unmarried.

TABLE – 4.3 EDUCATION

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
HSC	1	1%
ITI	19	3.4%
UG	42	43.7%
PG	68	51.3%
TOTAL	120	100%

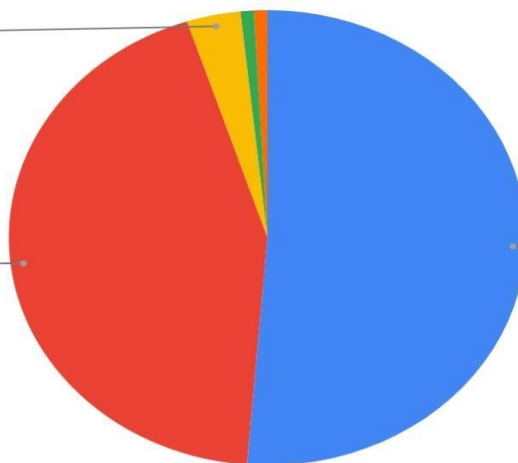
CHART – 4.3 EDUCATION

Count of Education

ITI
3.4%

UG
43.7%

PG
51.3%



INTERPRETATION:

From the above table it is interpreted that 1% of the respondents are HSC 3.4% of the respondents are ITI 43.7% of the respondents are UG and 51.3% are PG.

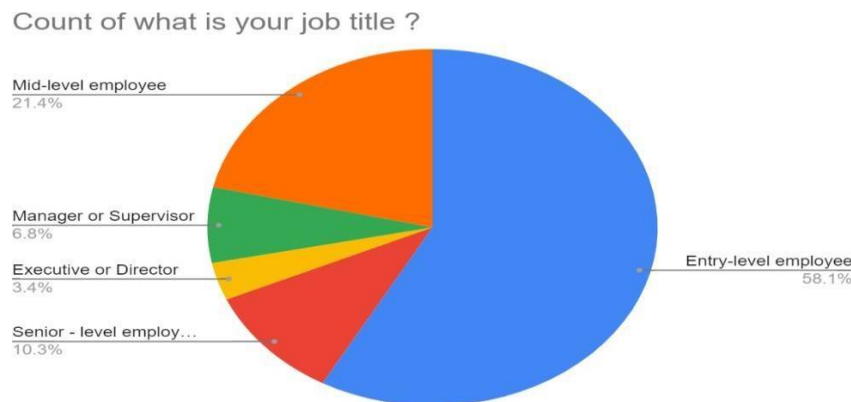
INFERENCE:

Majority of the respondents (51.3%) are PG.

TABLE – 4.4 OCCUPATION OF RESPONDENT'S

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Entry-level employee	62	58.0%
Mid-level employee	28	21.4%
Senior - level employee	13	10.3%
Manager or Supervisor	10	6.8%
Executive or Director	7	3.4%
Total	120	100%

CHART – 4.4 OCCUPATION OF RESPONDENT'S



INTERPRETATION:

From the above table it is interpreted that 58.0% of the respondents are entry-level employees 21.4% of the respondents are Mid-level employees 10.3% of the respondents are Senior-level employees 6.8% of the respondents are Manager or supervisor and 3.4% of the respondents are Executive or director

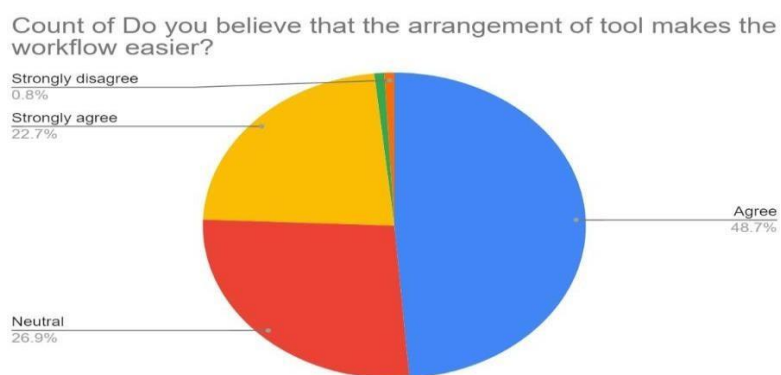
INFERENCE:

Majority of the respondents (58.0%) are Entry-Level employee.

TABLE – 4.5 Responses of Arrangement of tool makes the workflow

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Strongly agree	22	22.7%
Agree	54	48.7%
Disagree	0	0%
Neutral	26	26.9%
Strongly disagree	18	0.8%
Total	120	100%

CHART – 4.5 Responses of Arrangement of tool makes the workflow



INTERPRETATION:

From the above table it is interpreted that 22.7% of the respondents strongly agree 48.7% of the respondents Agree 0% of the respondents disagree 26.9% of the respondents are saying neutral and 0.8% of the respondents strongly disagree.

INFERENCE:

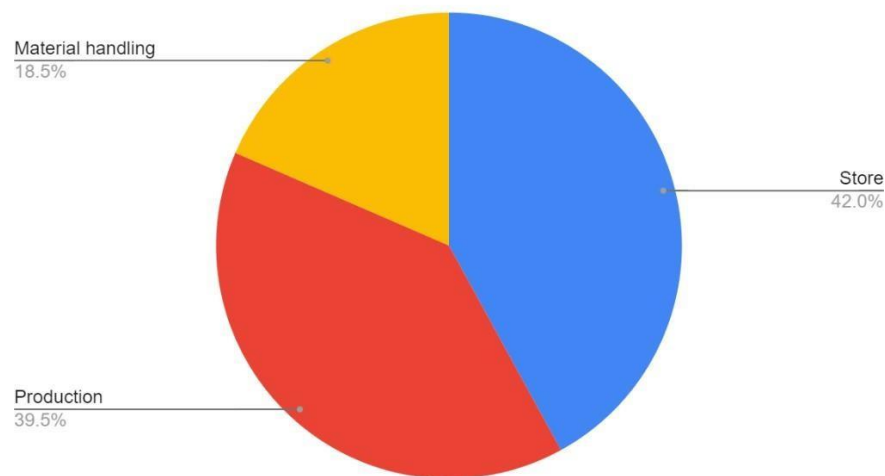
Majority of the respondents (26.9%) saying Neutral that the arrangement of tools makes the workflow easier.

TABLE – 4.6 RESPONSES ELIMINATED UNNECESSARY TOOLS

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Store	58	42.0%
Production	42	39.5%
Material handling	20	18.5%
Total	120	100%

CHART – 4.6 RESPONSES ELIMINATED UNNECESSARY TOOLS

Count of Which area more eliminated unnecessary tool?



INTERPRETATION:

From the above table it is interpreted that 42.0% of the respondents saying store 39.5% of the respondents says production 18.5% of the respondents says material handling.

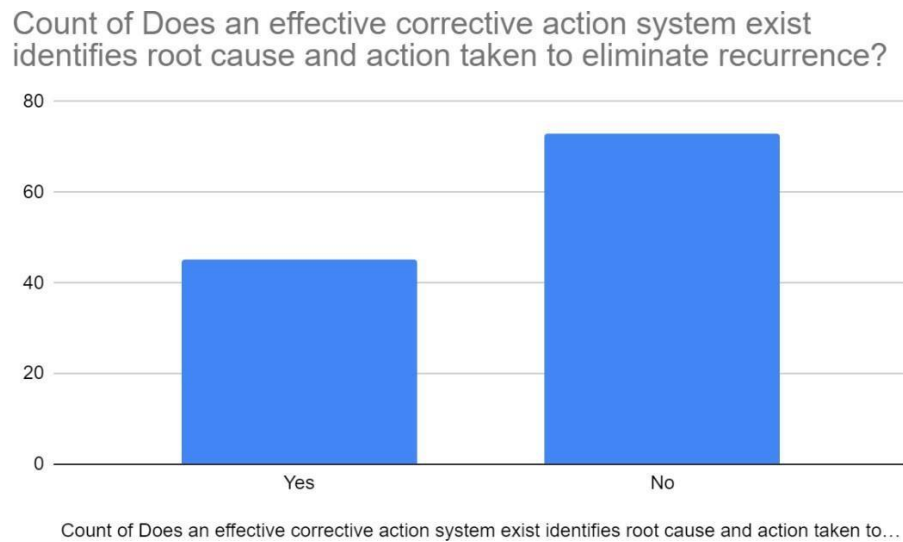
INFERENCE:

Majority of the respondents (42.0%) says store is the eliminated unnecessary tool.

TABLE – 4.7 Responses of Does an effective corrective action system exist identifies root cause and action taken to eliminate recurrence.

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Yes	53	43%
No	67	57%
Total	120	100%

CHART – 4.7 Responses of Does an effective corrective action system exist identifies root cause and action taken to eliminate recurrence.



INTERPRETATION:

From the above table it is interpreted that 43% of the respondents says Yes & 57% of the respondents says No.

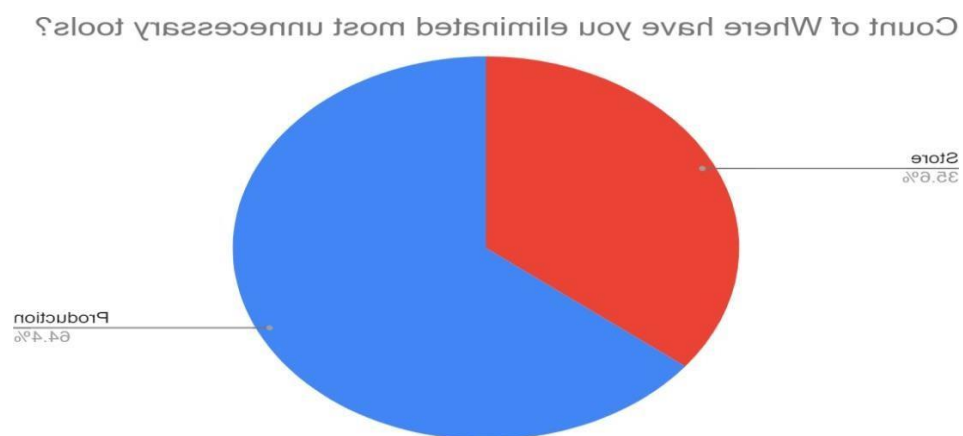
INFERENCE:

Majority of the respondents (57%) says No. That there is no effective corrective action system exists to identify the root cause and action to eliminate recurrence.

TABLE – 4.8 ELIMINATED MOST UNNECESSARY TOOL

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Store	34	35.6%
Production	86	64.6%
Total	120	100%

CHART - 4.8 ELIMINATED MOST UNNECESSARY TOOL



INTERPRETATION:

From the above table it is interpreted that 35.6% of the respondents says stores & 64.6% of the respondents says production.

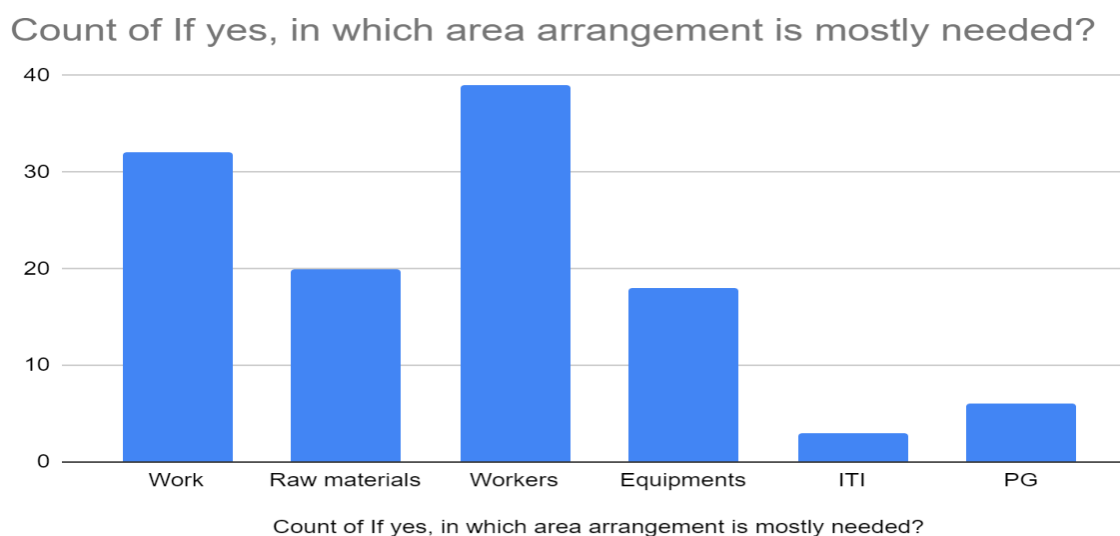
INFERENCE:

Majority of the respondents (64.6%) says Production.

TABLE – 4.9 Responses of Which Area Arrangement Is Mostly Needed.

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Work	22	28.7%
Raw material	19	19.5%
Workers	61	34.5%
Equipments	18	17.2%
Total	120	100%

CHART - 4.9 Responses of Which Area Arrangement Is Mostly Needed.



INTERPRETATION:

From the above table it is interpreted that 28.7% work 19.5% says Raw material 34.5% says workers and 17.2% says equipment

INFERENCE:

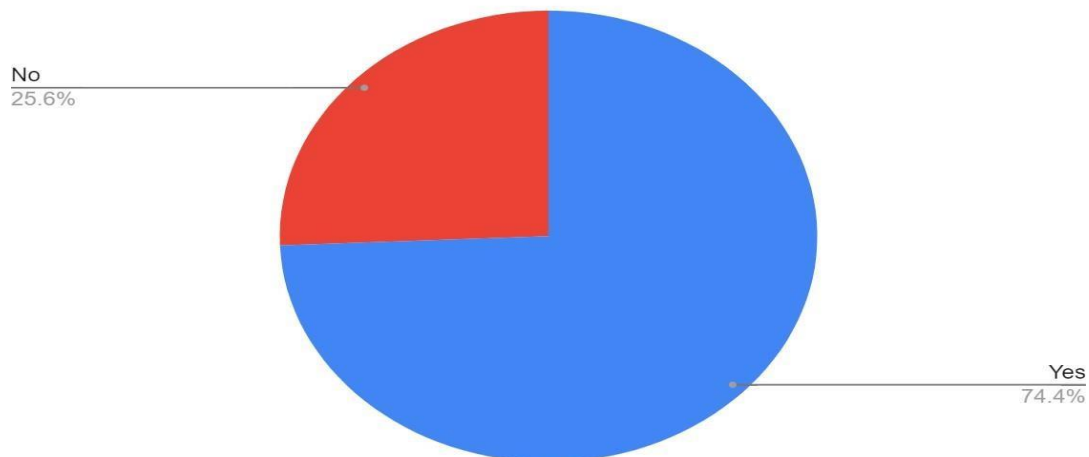
Majority of the respondents (34.5%) says workers are the most needed area of arrangement.

TABLE – 4.10 Responses of No for work station is restore for next shift

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Yes	90	74.4%
No	30	25.6%
Total	100	100%

CHART – 4.10 Responses of No for work station is restore for next shift

Count of Do you have a system to ensure that the work station is restored and ready for next shifts?



INTERPRETATION:

From the above table it is interpreted that 74.4% of the respondents says Yes & 25.6% of the respondents says No.

INFERENCE:

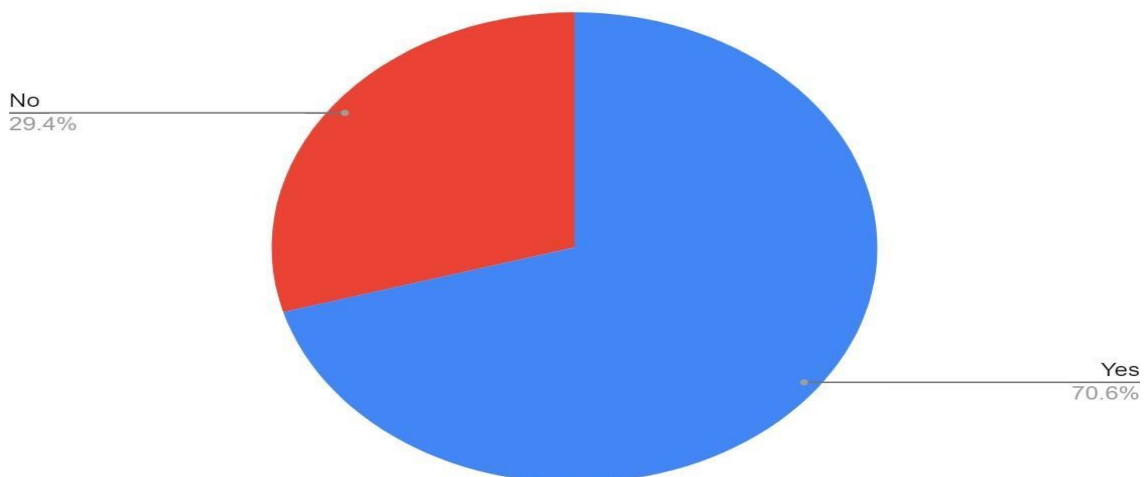
Majority of the respondents (57%) says yes.

TABLE – 4.11 People are respondents to don't clean the work place

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Yes	87	70.6%
No	33	29.4%
Total	120	100%

CHART – 4.11 People are respondents to don't clean the work place

Count of Do you clean after each shift?



INTERPRETATION:

From the above table it is interpreted that 74.4% of the respondents says Yes & 25.6% of the respondents says No.

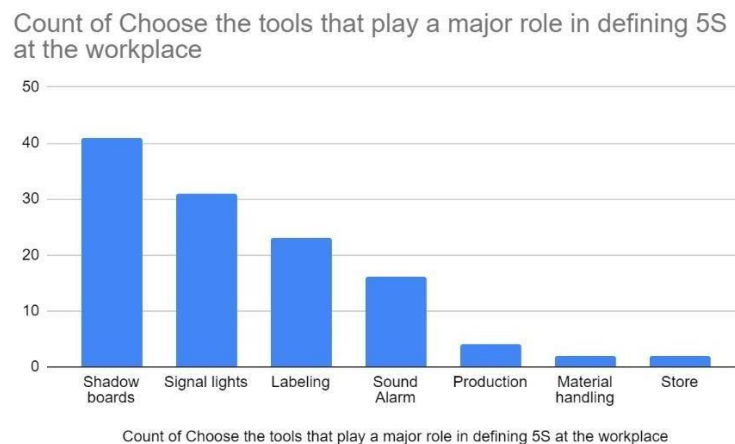
INFERENCE:

Majority of the respondents (57%) says yes.

TABLE – 4.12 Responses of Tools that plays a major role in defining 5s at the workplace.

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Shadow boards	61	40.05%
Signal lights	24	31%
Labeling	19	22%
Sound Alarm	16	8.5%
total	120	100%

CHART – 4.12 Responses of Tools that plays a major role in defining 5s at the workplace.



INTERPRETATION:

From the above table it is interpreted that 40.05% of the respondents says shadow boards 31% says signal lights 22% says labeling and 8.5% says sound alarm.

INFERENCE:

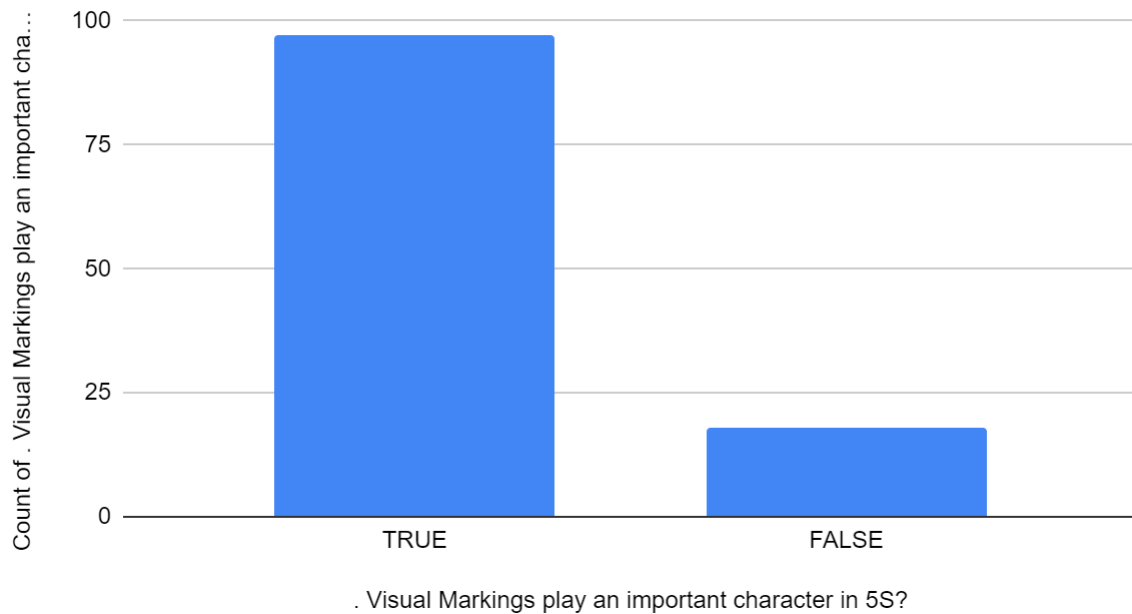
Majority of the respondents (40.05%) says shadow boards.

TABLE – 4.13 Responses of visual play an important character in 5s

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
TRUE	75	75%
FALSE	45	25%
TOTAL	120	100

CHART – 4.13 Responses of visual play an important character in 5s

Count of . Visual Markings play an important character in 5S?



INTERPRETATION:

From the above table it is interpreted that 75% of the respondents says True and 25% of the respondents says false.

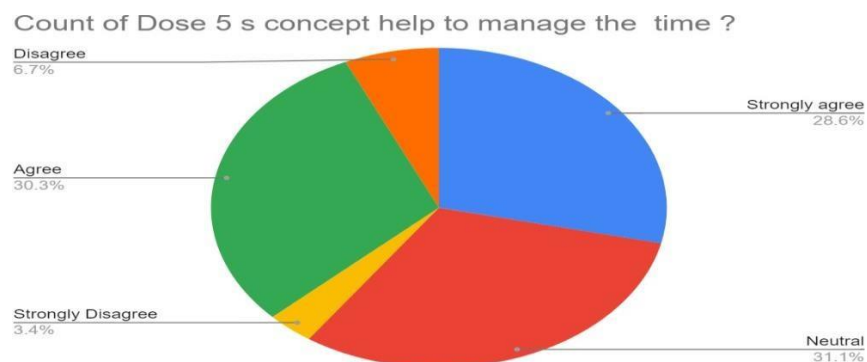
INFERENCE:

Majority of the respondents (75%) says True.

TABLE – 4.14 Responses of dose 5s practices help to manage the time.

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
STRONGLY AGREE	6	3.4%
AGREE	30	30.3%
NEUTRAL	45	31.1%
Disagree	14	6.7%
Strongly disagree	25	28.6%
Total	120	100%

CHART - 4.14 Responses of dose 5s practices help to manage the time.



INTERPRETATION:

From the above table it is interpreted that 3.4% of the respondents strongly agree 30.3% of the respondents agree 31.1% says neutral 6.7% says disagree and 28.6% of the response says strongly agree.

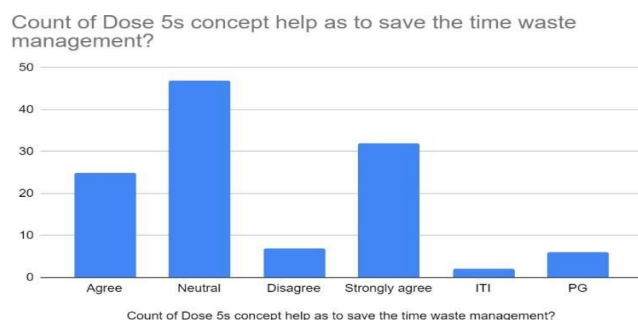
INFERENCE

Majority of the respondents (31.1%) says neutral that 5s practices helps to manage time.

TABLE – 4.15 Responses of dose 5s practice help us to save the time waste management.

OPTIONS	NO OF RESPONSES	PERCENTAGE OF RESPONSES
Strongly agree	40	30.7%
Agree	20	25%
Neutral	50	40.9%
Disagree	10	3.4%
Strongly disagree	0	0%
Total	120	100

CHART – 4.15 Responses of dose 5s practice help us to save the time waste management.



INTERPRETATION:

From the above table it is interpreted that 30.7% of the respondents strongly agree 25% agree 40.9% says neutral 3.4% says disagree and 0% of the respondents says strongly disagree.

INFERENCE

Majority of the respondents (40.9%) says neutral that 5s practice help us to save time waste management.

CHAPTER 5

FINDINGS

5.1 FINDINGS

- Among the following respondents 56.8% of them are male and 42.4% are female. This shows that male is highly interested
- From the above chart and table and In this company 90.8% respondent were Unmarried and 9.2% respondent were Married
- From the above chart and table 51.3% people are educate level was PG and lower level of qualification was HSC at 1%
- From the above chart and table 58.1% of people are in Entry-level employee in company and lowest percentage are 3.4% are Executive or Director
- From the above chart and table 48.7% are respondent to the agree the statements and 0 % of respondents for disagree the statement
- From the chart and table 42% of the respondents to the store and 39.5% of respondents to production and then 18.5% of respondents to the material handling
- From the chart and table 57% of the people are respondents to the No for the statements and 43% of people are say yes to the statement

- From the above chart and table 64.6% of respondents for production are important in the 5s concept and 35.6% of respondents for store are important for the 5s practices
- From the above chart and table 34.4% of the respondents to the workers for arrangement the work space and less responses 17.2% for equipments
- From the above chart and table 74.4% respondents to yes for the statements and 25.6% of the people are say No for work station is restore for next shift
- From the above chart and table 70.6% of the people are respondents to yes and 29.4 people are respondents to don't clean the work place
- From the above chart and table 40.05% respondents for shadow board and 31% respondents for signal light and 22% respondents for labelling and sound alarm at the work place
- From the above chart and table 75% of respondents are true for visual markings play an important character in 5s basis 75% respondent visual markings play an important character in 5s.
- From the chart and table 31.1% of respondents are neutral for this statement and 3.4% of the people are respondents to strongly agree the statement
- From the chart and able 40.9% of employee are strongly agree the statement and 0% no one strongly disagree the statement and 3.4% of the employee are disagree the statement.

CHAPTER 6

SUGGESTIONS AND CONCLUSION

6.1 SUGGESTIONS

- Any good concepts is useless unless and until it is been utilized properly. So here are some recommendations from my side to the company is that. Company need to focus on the improvement of utilization of 5S concepts in all the minor area of the work environment for attaining a good result in optimum level.
- One of the most important things for the success of the 5S is to have sustainability for following the concerts properly so this area the company needs to put more care for attaining the goal.> Frequent auditing of 5S will help to assure the benefits of 5S in an organization.
- Company lacks the sustainability of 5S in especially preparatory section, so as to maintain the 5S in an effective and efficient manner they need to put little more concentration on those areas.
- The company can provide quality related training educational programs and events for sustaining the motivation of employees in the aspect of quality.
- The company can act as role model and can motivate and assist other organizations in following quality improvement projects and better housekeeping practices.

6.2 CONCLUSION

1S: Sort - Process development in assembly line by removing the time require for gasket fitting during latent stool assembly, there was reduction of time by 45mins.* Stock confinement by using the raw material inventory such as fasteners in cycle such that oldstock should serve first so there was prevention of fasteners against corrosion Betterusage of workplace by removing scrap part from assembly working area.

2S: Set in order - Process growth by time reduction of 65mins in assembly and inspection. Increasing Efficiency by 7.87% by decrease in reactor assembly time. Shortening of time required for searching necessary things by making tray for tool during reactor assembly

3S: Shine - Improvised working conditions for workers by draining out water from working area. Machine maintenance cost has been reduced by following the5S check list mention above.

4S: Standardize - Improvement in safety has supported in reducing the injuries of workers after daily cleaning of working floor. Travel time of sub-assembled part such as gear box, motor and coupling is reduced which led to reduction of work hazards.

5S: Sustain - It gives a scope for Worker's participation in the work area design and maintenance.

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ANNEXURE

QUESTIONNAIRE

1. AGE

- ☐ 18-23
- ☐ 23-30
- ☐ More Than 30

2. GENDER

- ☐ Male
- ☐ Female
- ☐ Prefer Not Say

3. Martial status

- ☐ Married
- ☐ Unmarried

4. Education

- ☐ HSC
- ☐ ITI
- ☐ UG
- ☐ PG

5. what is your job title ?

- ☐ Entry-level employee
- ☐ Mid-level employee
- ☐ Senior - level employee
- ☐ Manager or Supervisor
- ☐ Executive or Director

6. Do you believe that the arrangement of tool makes the workflow easier?

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

7. Which area more eliminated unnecessary tool?

- ☐ Production
- ☐ Store
- ☐ Material handling

8. Does an effective corrective action system exist identifies root cause and action taken to eliminate recurrence?

- ☐ Yes
- ☐ No

9. Where have you eliminated most unnecessary tools?

- ☐ Production
- ☐ Store

10. If yes, in which area arrangement is mostly needed?

- ☐ Work
- ☐ Workers
- ☐ Equipments
- ☐ Raw materials

11. Do you have a system to ensure that the work station is restored and ready for next shifts?

- ☐ Yes
- ☐ No

12. Do you clean after each shift?

- ☐ Yes
- ☐ No

13. Choose the tools that play a major role in defining 5S at the workplace

- ☐ Shadow boards
- ☐ Signal lights
- ☐ Labelling
- ☐ Sound alarm

14. Visual Markings play an important character in 5S?

- ☐ Yes
- ☐ No

15. statement the 5 s concept help as to manage the time ?

- ☐ Strongly agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly disagree

