IT Support Service

Level I

Learning guide #05

Unit of Competence: Apply 3S
Module Title: Applying 3S
LG Code: ICT ITS1 M02 L01-LG-05
TTLM Code: ICT ITS1 TTLM 1019v1

LO1. Organize Junior Kaizen Promotion Team (KPT)

Instruction Sheet	Learning Guide #05

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Basics, principles and stages of KPT.
- Structure of Junior KPT.
- Effective and appropriate contributions to team and objectives.
- Effective and appropriate forms of communications.
- Preparing and using Kaizen Board.

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to:

- Basics, principles and stages of KPT are identified using appropriate procedures.
- Structure of Junior KPT is established in accordance with the organizational procedures.
- Effective and appropriate contributions are made to complement team activities and objectives using individual skills and competencies.
- Effective and appropriate forms of communications are used and undertaken with KPT members who contribute to know KPT activities and objectives.
- Kaizen Board (Visual Management Board) is prepared and used in harmony with different workplace contexts.

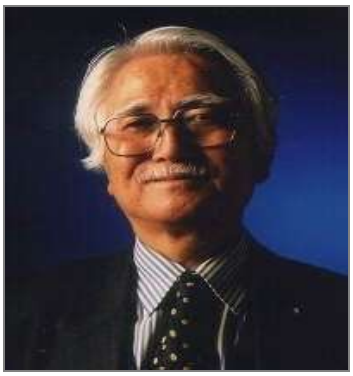
Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4”.
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3 and Self-check 4” **in page -6, 9, 12 and 14** respectively.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1, Operation Sheet 2 and Operation Sheet 3” **in page -15.**
6. Do the “LAP test” **in page – 16** (if you are ready).

Information Sheet-1	Basics, principles and stages of KPT.

1.1. Kaizen Basics

Mr. Masaaki Imai is one of the Japanese people who contributed to spreading of the term Kaizen throughout the world. Mr. Imai today serves as the president of a consulting company Cambridge Research Institute. In his book entitled "Kaizen: The Key to Japan's Competitive Success' published in 1986, defined Kaizen as "a Japanese business philosophy that assumes our way of life – be it our working life, our social life, or our home life – should focus on continual improvement efforts". The Oxford English Dictionary also gives the following definition of Kaizen "a Japanese business philosophy of continuous improvement of working practices, personal efficiency, etc."



Cambridge Research Institute, President.

Mr. Imai's 1st book on Kaizen.

Kaizen is a Japanese philosophy for improvement that can be traced to the meaning of the Japanese words 'Kai' and 'Zen', which translate roughly into: 'Kai' - change, alter 'zen' - better, right. The above two words combine to mean "change for better" or "Continuous improvement." Kaizen means improvement, continuous improvement involving everyone in the organization from top management, to managers then to supervisors, and to workers. It is a philosophy of never being satisfied with what was accomplished last week, last year or last time**.**

Mr. Imai also stated "Kaizen is not just a management technique but a philosophy which instructs how a human should conduct his or her life. Kaizen focuses on how people conduct their work. It shows how management and workers can change their mindset together to improve their productivity". Not a day should go by without some kind of improvement being made. We have to ask always: how can we do the job better tomorrow, than we are doing it today? Engineers at Japanese plants are often warned, "There will be no progress if you keep on doing things exactly the same way all the time."

For the U.S., Kaizen's clear message is "do it better, make it better, improve it even if it isn't broke, because if we don't, we can't compete with those who do."

The Ethiopian Kaizen Institute developed its own working definition as follows:
"Kaizen is a philosophy of continual, participatory and self-disciplined innovation management having its own integrated systems and problem solving tools, implemented with the highest level of commitments at all levels of owners, leaders

and employees through enhancing their absorptive capability step by step aiming at creating new and advanced corporate culture to catch-up and attain world class competitiveness".

1.1 The Origin of Kaizen

Kaizen developed and spread in Japan and later to the world in four phases.

Phase I - 1950s (end of world war II): This phase was the absorption of foreign technique by Japan to make improvements and catch-up with the international industrial development. Because at that time products made by Japan were known as low quality and low price in the world market. Japan learned and adapted quality management from Dr. W. E. Deming (a US statistician and consultant) and Dr. J. M. Juran. Then various organizations are established such as the Union of Japanese Scientists and Engineers (JUSE) in 1946 and the Japan Productivity Center (JPC) in 1955, to support the national movement for quality and productivity improvement and to disseminate the American Scientific Quality Control techniques. Many companies developed their own systems of kaizen, including the globally known Toyota Production System (TPS) developed by the Toyota Motor Corporation. These efforts laid a solid foundation for establishing the so-called Japanese production management system. November is decided as quality month and Deming Prize was awarded by JUSE on this month to raise the QC level in Japan. Thus, kaizen was originally a foreign technique which was adopted and adjusted to become a Japanese technique.

Phase 2 - 1970s -180s: This phase was the diffusion of Kaizen among Japanese companies, including small and medium sized companies. This led to a rapid increase in the number of Quality Control Circles (QCC).

Phase 3 - mid 1980s: through Japanese firms abroad and various public organizations Kaizen spread in the world. In 1985 Japanese manufacturing companies shifted their production bases to East Asia where they introduced kaizen philosophy and practices.

Phase 4 – In this phase Kaizen diffused to developing regions in Latin America & Eastern Europe including Africa (mainly in Sub-Saharan Africa). East Asia together with the Japanese government's TICAD IV initiative for promoting trade and investment in Africa an opportunity was provided for Japan to more actively publicize and introduce kaizen in developing regions. Kaizen also spread through Imai's first book- 'Kaizen: The Key to Japan's Competitive Success' published on 1986. Most Japanese enterprises are now endowed with world-leading capability.

JICA (Japan International Cooperation Agency) has also offered assistance for Kaizen to many developing countries. JICA's assistance with Kaizen started in Asian countries like Singapore in 1983 then in Malaysia, Philippines, Thailand, Indonesia and Vietnam. And in Latin America countries like Costa Rica, Chile, Argentina, Paraguay, Brazil and Mexico. In Eastern European Countries like Poland, Hungary, Baltic countries (Estonia, Latvia, Lithuania), Armenia, Bosnia Herzegovina, and Serbia.

Clarification of safety passages name plates

Inspection tools in good order with

Visual Control Board

JICA Kaizen assistance in Africa started in Egypt, Tunisia, and then in Ethiopia**,** Kenya, Zambia, Ghana, Tanzania.

1.2 The Dissemination of Kaizen in Ethiopia

Kaizen was driven to Ethiopia by the strong commitment of the Late Prime Minister H.E. Meles Zenawi. After listening to the Kaizen experience of Egypt and Tunisia at the African Taskforce meeting of the Initiative for Policy Dialogue (IPD) held in Addis Ababa on July 2008, the Prime Minister requested the government of Japan for Kaizen project in Ethiopia. In response to the request a work agreement was signed between JICA and the Government of Ethiopia in June 2009. A pilot project was then started in October 2009 to be completed on May 2011. Basic Kaizen activities were implemented in selected 30 large and medium enterprises located at Addis Ababa.

A Japanese Experts team and Ethiopian Kaizen Unit members are assigned for the implementation of the project. Pairing with the Japanese Experts team, the Ethiopian team who were from Ministry of Industry (MoI) has acquired Kaizen-related technical knowledge and skills through on-the-job training and other training opportunities available in the project activities. As a result, Kaizen has come to be known among policy makers and business managers in Ethiopia and an encouraging improvements of quality, productivity, delivery time, cost etc are achieved. Manual and audiovisual materials were prepared for Kaizen dissemination activities in the country.

The Late PM H.E Meles Zenawi

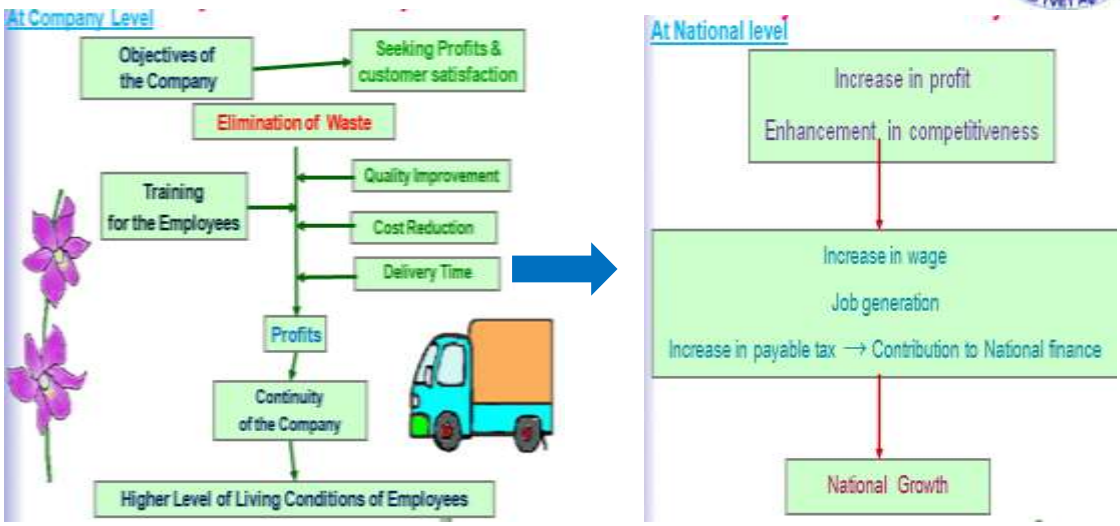
The Late PM Meles Zenawi receiving Kaizen manual produced by the pilot project, 2011.

Following the achievements of the pilot project, the Ethiopian government has decided to establish a core organization i.e. the Ethiopian Kaizen Institute (EKI) under MoI in 2011 to disseminate Kaizen across the nation. At the request of the government of Ethiopia to government of Japan to extend the support and technical cooperation for institutionalization of the EKI in such areas as organizational development, human resource development, and nationwide dissemination of Kaizen, a second project on "Capacity Building for Dissemination of Quality and Productivity Improvement (Kaizen)" was launched on November 2011 to be carried out for three years until October 2014.

The Ethiopian Kaizen institute is established with various objectives and functions of formulating policies, plans, strategies and programs for Kaizen dissemination; providing trainings; developing authorized and standardized training materials and manuals; conducting consulting services; and establishing mechanisms for nationwide outreach. EKI has designed Ethiopian Kaizen model consisting of five stages: Testing, Institutionalization, Implementation, Sustain and Ownership (TIISO). At each of these stages awareness raising, experiencing best practices and customization are done.

1.3 The Three Pillars of Kaizen

Kaizen is crucial for any sector because factories and organizations of any sector are like living organisms. The healthiest organisms move and change in a flexible manner in accordance with their environment. In the business world, customer needs are always changing, new technologies are continually being developed and generation after generation of new products appear on the market. Sales competition is becoming tougher each year as companies strive to manufacture more sophisticated products at lower cost. The same is true with the service providing industries. In the presence of these challenges, therefore factories or organizations must find new ways to ensure their survival by adapting to the changing business environment. They must move beyond old organizational concepts and customs that no longer apply and must adopt new methods that are appropriate to the new times.



As indicated in the above diagrams, one of the objectives of a company is increasing profits. If sufficient profits are generated, the continuation of a company and the living conditions of its employees also ensured. Quality, cost reduction, and delivery time are the three biggest contributors to the profit increase through elimination of wastes/Muda.

In general Kaizen is indispensable to:

- Make optimal use of peoples' skills
- Reduce overall cost
- Maintain high quality (or improve quality)
- Reduce or eliminate wastes (MUDA)
- Improve productivity
- Improve Safety
- Shorten lead time & improve delivery time
- Improve space utilization etc

Masaaki Imai proposed Kaizen as "the unifying thread running through the philosophy, the systems, and problem solving tools developed in Japan over the last 30 years". The three pillars of Kaizen are:

1) As a philosophy
2) Kaizen systems
3) Kaizen tools

1.3.1 Kaizen as a Philosophy

Kaizen is a philosophy of continuous undertaking by an organization to improve its activities and processes with the goal to always improve Kaizen elements: Productivity, Quality, Cost, Delivery time, Moral, Safety, Environment and Gender equality (PQCDMSEG) so that the organisation can meet full customer satisfaction. Kaizen starts with the recognition that any corporation has problems and it solves these problems by:

- Establishing corporate culture
- Following a customer-driven strategy to increase customer satisfaction. Management's role should be to make a constant effort to provide better products at lower prices. Management should devote at least 50 percent of its attention to Kaizen.
- Emphasizing on process or process-oriented way of thinking.

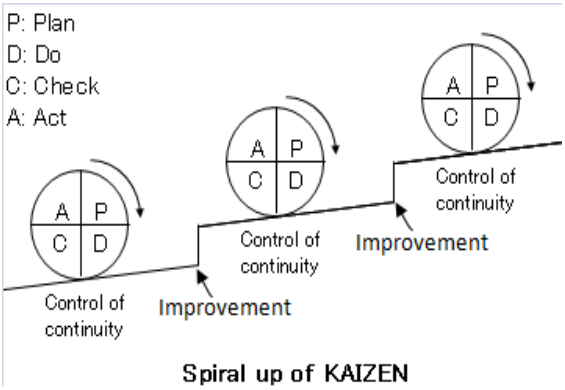
- Supporting and acknowledging people's process-oriented efforts for improvement rather than evaluating people's performance on the basis of results.

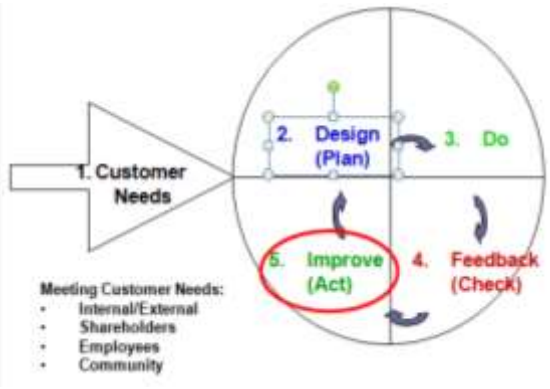
Kaizen as a philosophy is built-in and run through guiding principles. These guiding principles can be summarized as follows:

- Proactive and spontaneous participation of front-line workers (they are centre of Kaizen activities).
- Focus on the improvements of workplace/Gemba (the foundation of all the improvement efforts). It is a key entry to endless revolving activities of Kaizen.
- Practicing kaizen that lead to a corporate culture.
- Kaizen fosters process as well as result oriented thinking.
- Speak with data - collect, verify and analyse data.
- Put quality first even than cost and delivery.
- Bottom-up approach i.e. integrated total company approach: genuine participation of top management, middle managers and front-line employees in a collaborative working system throughout company organizations
- Continuous and endless activities in revolving cycles of PDCA resulting in significant improvements.
- Top management commitment.
- Learning process and customization
- Customer satisfaction

Kaizen as a management strategy has its characteristics. These are Kaizen has continuity, follows participatory approach, accumulation of small Improvement, applied using small investment and widely applicable.

- ***Continuity:*** Kaizen is a dynamic activity in revolving cycles of PDCA (Plan, Do, Check and Act). Once a new improvement becomes a new standard, the next cycle is set up to seek further improvement. Kaizen is a continuous challenge towards ever higher-level improvement, cycle by cycle, without an end.





- ***Participatory approach:*** Kaizen is built in and run with an integrated and company-wide approach through the collaboration of all the levels of the organisation that are top management, middle managers and front-line employees. Commitment, genuine participation and motivation of all the three actors are critical factors. As shown in diagram 1 Kaizen core team is a team of the management bodies of an organization whose duties are to lead and direct

all teams established in each department and cross functional teams with members from different departments. Cross functional teams are formed to solve problems that cannot be solved by departments. Diagram 2 shows Kaizen dissemination in an organization by selecting and implementing Kaizen in sample and model work areas and then building on and expanding the success in company-wide scale. For fruitful participation, giving training and education as well as communication is very important. To utilize individual workers ideas suggestion system can be introduced.

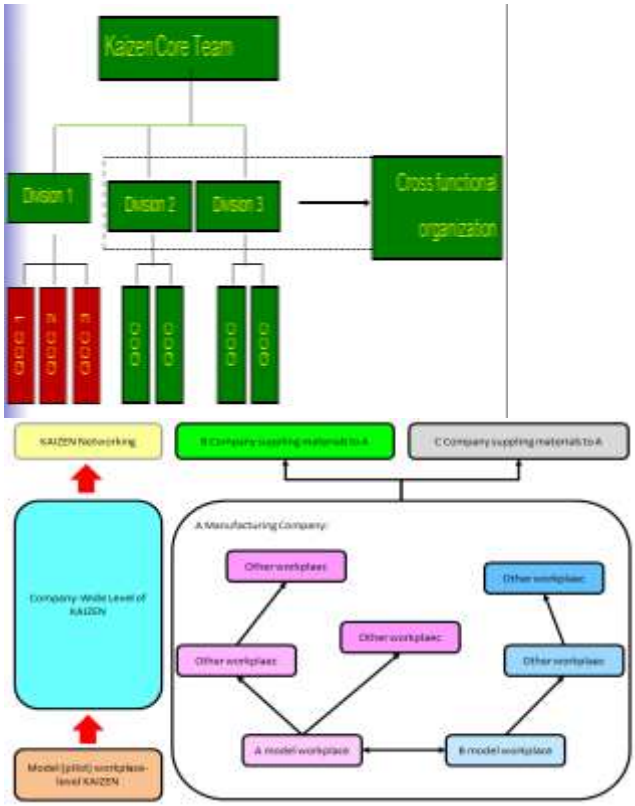


Diagram 1: Core team, cross functional team and dissemination QCC(Quality Control Circles) and Institutionalisation

Diagram 2: Kaizen

- ***Accumulation of small Improvement:*** Japanese people say “accumulation of a small dust builds a mountain”. Significant and greater results can be attained through accumulation of small improvements or by carrying out repeatedly minor or small improvements as opposed to innovation.

- ***Needs small investment:*** Waste elimination may not require investment or may require little investment through the introduction of basic Kaizen technique such as 5S. To conduct 5S i.e. to sort or separate necessary and unnecessary items , to set or place items in locations suitable for work and to shine or clean: red tags, paint, shelves, racks, display boards and cleaning materials etc. are needed which can be bought with small investment. A company shouldn’t have to make large investment to buy machines and make Kaizen/improvements. If machines are used before eliminating wastes from the work area and operations, this will lead to the mechanization of wasteful operations. There will not be a value adding works in the company.

- ***Widely Applicable:*** Kaizen refers to a philosophy or practices that focus upon continuous improvement in manufacturing activities, business activities, and even life in general, depending on interpretation and usage. It is widely applicable in manufacturing, service, public or non-profit organizations and others. Kaizen techniques are now universally applicable to all sectors.

Requisites of Kaizen: to understand and successfully implement Kaizen the following Kaizen requisites should be fulfilled.

- ***K****nowledge of Kaizen concepts and techniques* is essential for doing Kaizen activities. Kaizen is easy to understand and should be started from the easy Kaizen techniques such as 5S and QC7 tools.

- ***A****ttitude with positive thinking* is necessary for understanding and implementing Kaizen and Kaizen concept and techniques can also build positive attitude and can bring corporate culture.

- ***I****nvolvement of all from top management to front-line workers*: top management with commitment and interest on Kaizen, participation of all workers and establishment and involvement of cross-functional teams are essential for success and continuity of Kaizen.

- ***Z****ealous support for Kaizen*: Kaizen needs zealous attention like support for one football team.

- ***E****ducation about Kaizen (training):* Kaizen is human-oriented i.e. it is implemented by employees therefore education or training about Kaizen is vital.

- ***N****ever-ending activity:* Kaizen is continuous and practical, aiming always for best improvement through accumulation of small improvements.

1.3.2 Kaizen Systems

Underlying the Kaizen strategy is the recognition that management must seek to satisfy the customer and serve customer needs if it is to stay in business and make a

profit. This Kaizen strategy has systems that can be applied to realize planned goals and targets. These systems include:

Toyota Production System

The Toyota Production system sometimes called the *Kanban* system or *Just in time*, attracts great attention in Japan and abroad, because Toyota is one of the few companies which have survived the oil crisis on 1980s and still maintained a high level of profitability. Toyota is well known for its outstanding quality control systems, and worker-suggestion system. The man who pioneered Toyota's unique system, Taiichi Ohno, claims that Toyota system is born out of the need to develop a system for manufacturing small numbers of many different kinds of automobiles which is contrast to the Western practice of producing large numbers of similar vehicles. Ohno also classified the waste incurred in the production process into seven types (listed on next content). To eliminate these wastes, he devised the *just-in-time* and *jidohka* (automation) concepts.

Just-in-time means that the exact number of required units is brought to each successive stage of production at appropriate time. *Kanban* is a signboard or label used as a communication tools in this system. It is attached to each box of parts as they go to the assembly line. *Jidoka* (autonomation) is when machines stop automatically whenever a problem occurs. All machines at Toyota are equipped with automatic stop mechanisms. The worker has to attend at the machine when it has stopped which enables him/her to take charge of many machines at a time, thus greatly improving his productivity.

The Toyota production system is, in a nutshell, a system which makes sure that the required number of parts and components are manufactured and forwarded to the final assembly line so that final assembly does not stop. It is a system that is still undergoing change and improvement every day.

Total Productive Maintenance

Total productive maintenance (TPM) is an innovative Japanese concept which can be traced back to 1951. TPM aims at maximizing equipment effectiveness throughout the entire life of the equipment. TPM can be considered as the medical science of machines. TPM involves everyone in all departments and at all levels; it motivates people for plant maintenance through small-group and voluntary activities, and involves such basic elements as developing a maintenance system, education in basic 5S, problem-solving skills, and activities to achieve zero breakdowns. Top management must design a system that recognizes and rewards everyone's ability and responsibility for TPM.TPM training is conducted with the emphasis on such basics as how the machines work and how to maintain them in the workshop.

The goal of TPM is the total elimination of all losses. Overall Equipment Effectiveness (OEE) allows to quantify the 6 major types of equipment losses. These are:

1) *Breakdowns* are times when equipment breaks down due to failure and isn't available when we need it to be.
2) *Setup and adjustment losses* occur when we're working to prepare equipment to run a different type of product. (e.g. exchange of dies in injection molding machines, etc.)
3) *Idling and minor stoppages* (abnormal operation of sensor, etc.).

4) *Reduced speed* (discrepancies between designed and actual speed of equipment)
5) *Defects* in process and rework (scrap and quality defects requiring repair). These occur when our machines produce bad parts. These are especially devastating losses since the time the machines spent producing the bad parts is wasted and chances are good that the machine will have to spend additional time reworking the part or producing a new part altogether.
6) *Reduced yield* between machine startup and stable production.

Total Quality Control (TQC)
Organized kaizen activities involving everyone in a company- managers and workers- in a totally integrated effort towards improving performance at every level. This improved performance is directed toward satisfying such cross-functional goals as quality, cost, scheduling, manpower development, and new product development. It is assumed that these activities ultimately lead to increased customer satisfaction. It is equivalent to Company-Wide Quality Control (CWQC).

Total Quality Management System
A number of management practices, philosophies and methods to improve the way an organization does business, makes its products, and interacts with its employees and customers. QCC activity functions as an integral part of TQM. TQM was evolved from TQC in the late 80s.

Suggestion system
Suggestion system is an integral part of the established management system, and the number of worker's suggestions is regarded as an important criterion in reviewing the performance of these workers' supervisor. It is a method by which the ideas and suggestions of the employees are communicated upward through the management hierarchy in order to achieve cost savings or improve product quality, workplace efficiency, customer service, or working conditions. Examples range from simply placing suggestion boxes in common areas to implementing formal programs with committees to review ideas and rewards for those that are adopted.

1.3.3 Kaizen Tools

As presented by Masaaki Imai, Kaizen is an umbrella concept that embraces different continuous improvement activities on an organization as shown in the figure *below* **.** There are a large number of related and often overlapping implementation methods and technical tools that belong to the kaizen Toolkit. Basing on kaizen philosophy and through following kaizen systems, Kaizen tools bring continuous improvement.

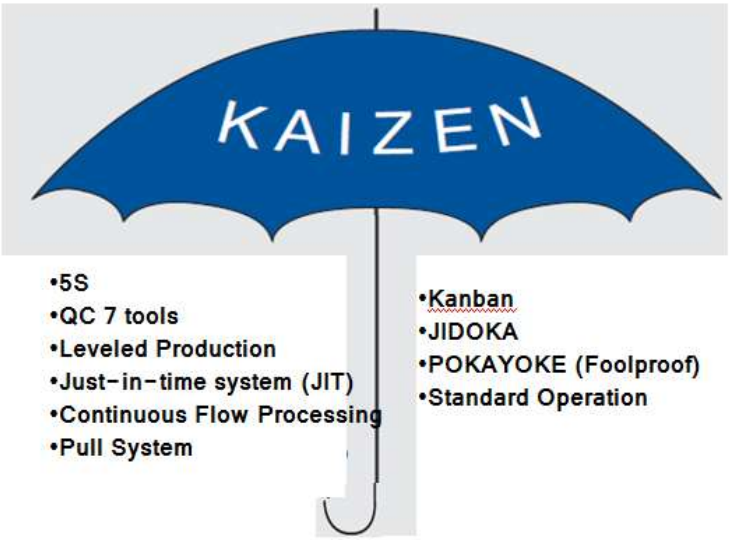
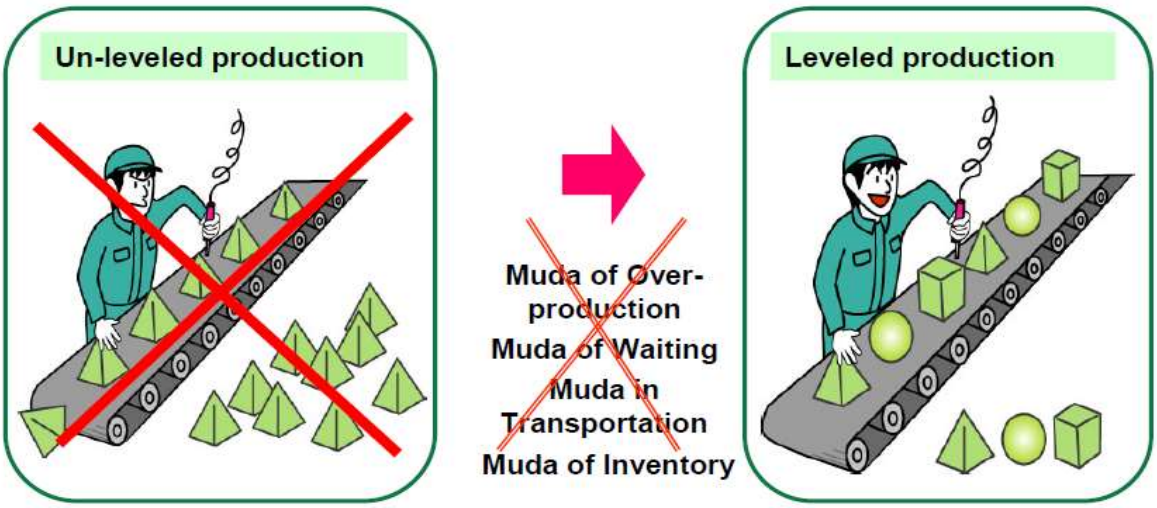


Fig. Some basic Kaizen techniques.

5S is a systematized approach to standardize work environment of an organization so as to create a workplace that is more organized, more efficient, safer, cleaner, and more pleasant to work in, and to maintain it on an on-going basis. It consists of Sort, Set in Order, Shine, Standardize and Sustain.

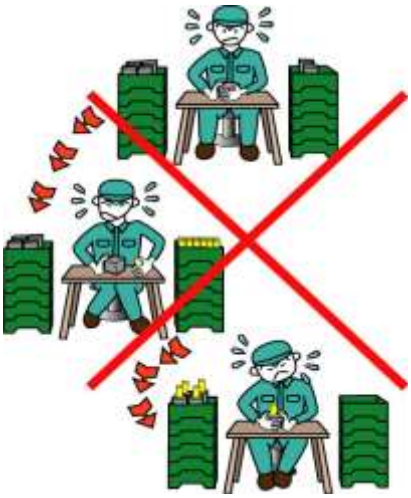
QC 7 tools are the most frequently used analytical tools for QC activities and Kaizen activities. They are: (1) graphs; (2) check sheets; (3) histogram; (4) control charts; (5) Pareto charts; (6) fish-bone charts (cause-and-effect diagrams); and (7) scatter diagram.

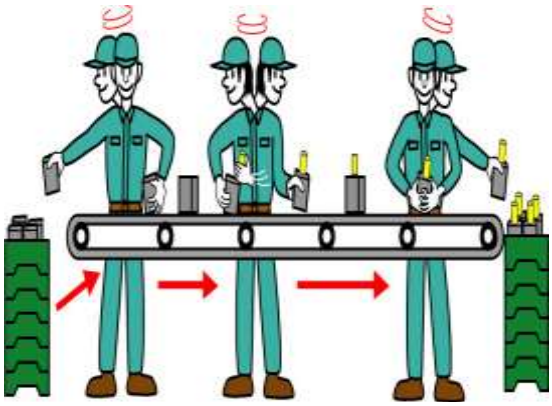
Leveled production means levelling of type and/or volume of items produced at anytime. It is avoiding variance in product types and/or volume.



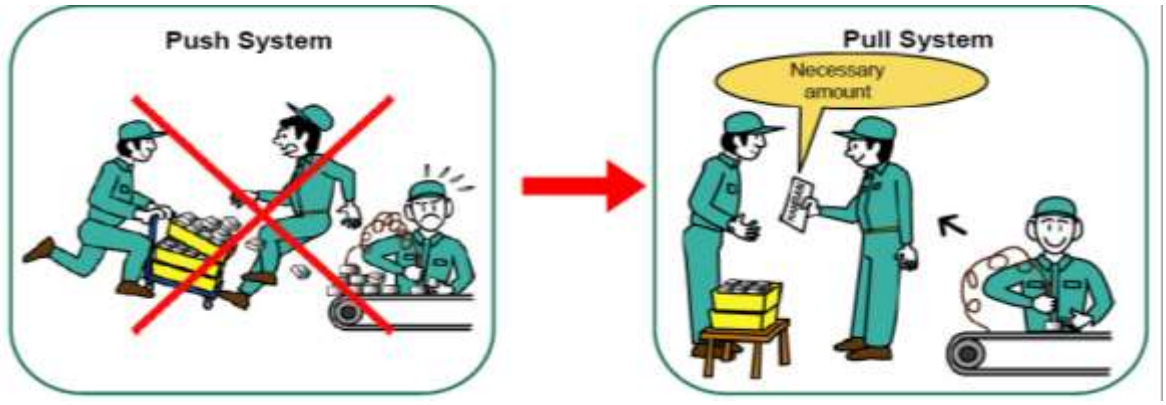
Just-in-time is a method of production in which a production line produces just what is needed, only when needed, and in exact quantity needed.

Continuous flow processing **is** a method of production in which products move from one work station to the next piece by piece in succession and in Correct sequence of processing to complete a process.

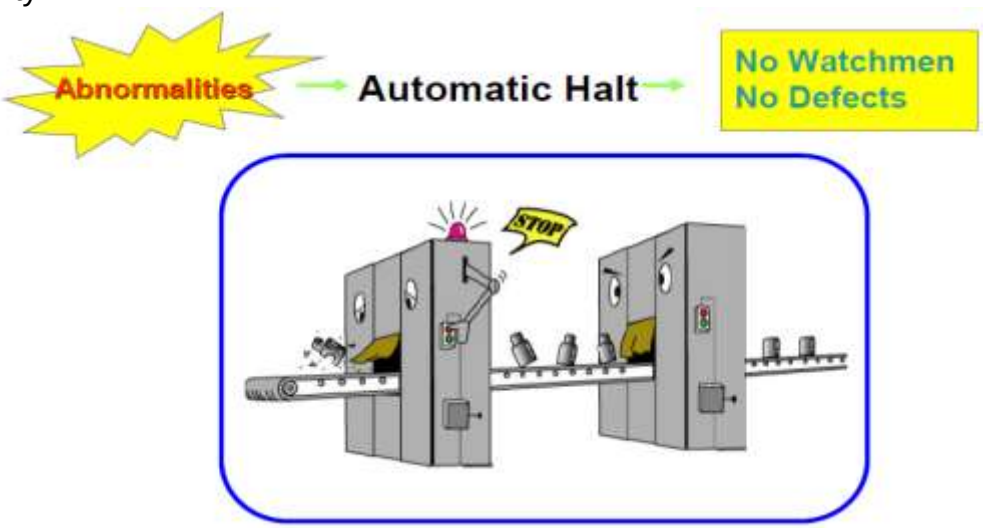




Pull System is when products in the previous process are taken by the workers in the next process when needed and in the amount needed. In the previous process operation, only the amount taken is produced. *Kanban* is used as the communication tool to request parts, semi-products or materials from the upstream process (previous process) in exact quantity & specifications needed.

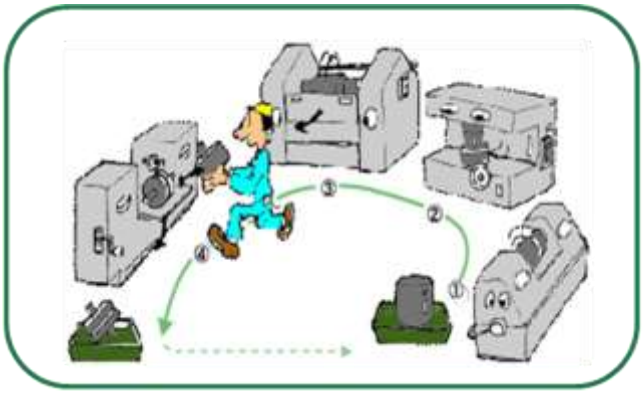


JIDOKA is a systematic approach to prevent defects or abnormalities from passing to the next process. Operation stops automatically by a **programmed machine** at the time of detection of an abnormality or stopped **by the worker** who detected the abnormality.



POKAYOKE (Foolproof) means error prevention. It is a method which avoids mistakes and defects from being produced. e.g, only one type of bolt used within a specific work-station to prevent wrong part usage.

Standard operation is an efficient production method/procedure that can be followed by anyone assigned for a task. It helps to clarify the rules for the production method and find out what is wasteful, uneven, and overburdening.



"All I need to do is to follow the same cycle!"

1.4 Kaizen targets or elements

PQCDSMEG are targets of Kaizen activities. PQCDSMEG stands for Productivity, Quality, Cost, Delivery time, Safety, Moral, Environment, and Gender equality (added by EKI). If this eight targets can be achieved, then success of the organization and customer satisfaction are confirmed. QCD refers to the three elements of satisfying customer requirements: Quality, Cost and Delivery.

Productivity: is expressed as the ratio of output to input. A general productivity measure often used in production control is the quantity or value of products produced per unit time. Another commonly used productivity measure is labor productivity, i.e., the quantity or value of products produced per worker per hour.

Quality: means degree of fulfillment of requirements. In a market economy or where competition is prevalent, these requirements are ultimately what the customers' demand of products or services they want to purchase. In most cases, companies providing the products or services determine the requirements based on their best attempt to meet the customer needs. In other words, quality refers to conformance to specifications and customer requirements. For instance, Product quality requirements relate to the product's shape, appearance, performance, reliability,

durability, and so forth. These product requirements are ultimately what the customers want.

In a broader sense, quality refers to the quality of process or work in designing, producing, delivering, and after-servicing the products or services. The foremost concern is with the *quality of people.* The three building blocks of a business are hardware, software, and "human ware." Only after human ware is squarely in place should the hardware and software aspects of a business be considered. Building quality into people means helping them become Kaizen conscious.

Cost: is monetary value of all the inputs to produce a product. In accounting terms, cost includes cost of labor, cost of materials, and other expenses. The cost items that can be directly attributable to a product manufacturing process is called direct expense, while others are called indirect expense. Total manufacturing cost, or product cost, is the sum of the two. Unit manufacturing cost (unit product cost) is used in the factory level or workplace level cost management, therefore, used often times in KAIZEN activities as well. Cost is one of the three primary targets of improvement in KAIZEN activities along with quality and deliver.

Manufacturing/Service cost = (material + labor + facility + utility + others)cost

The word cost usually refers to cost management, and not cost cutting. Cost management refers to managing various resources properly, and eliminating all sorts of wastes/Muda in such a way that the overall cost goes down.

Delivery time: refers to the timely delivery of the volume of products or services to meet the customer's needs. On-time product delivery to the customer or adhering to the due date is critical to achieve customer satisfaction together with quality and cost in a competitive market environment.

Moral / Motivation: Morale generally refers to people's confidence, enthusiasm and discipline as a person or as a group. Morale at workplace is therefore employees' confidence, enthusiasm and discipline in terms of the work and goals of the workplace. People have the desire to demonstrate their capability fully, to be recognized, to grow, and to become fulfilled. KAIZEN activities at the workplace with genuine participation of employees provide such opportunities to the employees, and as the result, boost their morale. This is to create a virtuous cycle of KAIZEN's advancement and the employees' growth as individual persons progressing in tandem. In order to achieve such a virtuous cycle, company management should develop and maintain a management principle of trust and empowerment for employees, in which employee participation and their initiatives at the workplace are fully supported; delegation of authority to managers/supervisors is properly done; and training opportunities are provided to employees. And motivation is people's willingness to work on tasks, activities and any other engagements they undertake.

Safety: Kaizen is also used as a methodology for making safety improvements. Safety is the condition of a "steady state" of an organization or place doing what it is supposed to do. In the world of everyday affairs, not all goes as planned. Some entity's steady state is challenged. This is where security science, which is of more recent date, enters. Drawing from the definition of safety, then: Security is the process or means, physical or human, of delaying, preventing, and otherwise

protecting against external or internal, defects, dangers, loss, criminals, and other actions that threaten, hinder or destroy an organization's "steady state," and deprive it of its intended purpose for being. For instance, home safety may indicate a building's ability to protect against external harm events (such as weather, home invasion, etc.), or may indicate that its internal installations (such as appliances, stairs, etc.) are safe (not dangerous or harmful) for its inhabitants.

Ensuring that a workplace is safe and lively to the satisfaction of the employees working there, and it is also indispensable as corporate activities. In particular, safety is directly related to each worker. The employees are expected to have a strong stance of creating a workplace which is safe and full of vitality. Each year thousands of employees are killed or seriously injured at work. The vast majority of these deaths could be prevented, and the severity of the injuries could be greatly reduced. There are nine key sets of actions that you can take to improve safety in your company.

- Mark emergency exits and put up warning signs
- Provide protective clothing and tools
- Raise safety awareness
- Establish safety standards and regulations
- Set up safety committees and patrols
- Ensure facilities and equipment are safe
- Keep accident records
- Set safety targets
- Be prepared to deal with disasters

A safe workplace is a place with decreased in negligent errors, decreased or zero accidents, reduction of fatigue, comfortable environment, proper arrangement, clean etc.

Environment: The environment has many resources essential for life. These resources must be used wisely for generations to continue. Such resources include air, water, light, land/space etc. which should be utilized efficiently. Wastes that occur on the environment should be reduced by recycling as much as possible. Applying Kaizen also helps to make efficient use of the environment and to conserve it. Hence, environment should be one of the targets of Kaizen..

Gender equality: Gender can refer to the unconsciously constructed roles of men and women, as well as their mutual relationships, based on such factors as culture, tradition, and customs. Deep-rooted gender inequality, especially in developing nations, frequently places women in a disadvantaged position with regard to education, healthcare, labor, and other aspects of society. The promotion of gender equality and empowerment of women is a priority of the Millennium Development Goals and will remain an important part of the development agenda. Kaizen can convey this gender equality by changing the attitude of people. Hence bringing gender equality should be one of the targets of Kaizen. Gender should be considered in conducting any activities.

1.5 Wastes/'Muda'

1.5.1 Definition of Waste/ Muda

Wastes or Muda are activities which use resources, time or cost without adding value. Value-added means those activities that change raw material into value for

the customer. Muda is a Japanese word meaning wasteful activity. It is anything unnecessary in operation. It increases production cost and affects the quality of the product and also delivery time. Reducing or eliminating Muda is, of course, one of the fundamental objectives of any quality-oriented person.

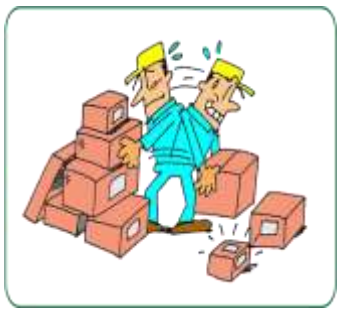
1.5.2 Muda identified by TOYOTA company

Seven main types of wastes were identified by Taichi Ohno as a part of the Toyota Production System. However, this list has been modified and expanded by various practitioners. Every waste you will come across in any organization or even in day-to-day life will fall into one of these categories. Such as: Muda of overproduction, inventory, motion, transportation, waiting, over-processing and defecting making.

Over production: Muda of over-production means to produce things more than necessary in terms of type, time, and volume. It is called “the worst kind of Muda” since it hides all the other wastes.

Inventory: Muda of inventory includes a stock of raw materials, work in process and final products. It needs stock space and excess transportation.

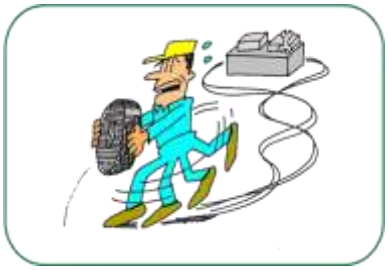
Motion: Muda of Motion are non-value adding movements or more than necessary movements of workers, equipment, and machines, such as looking for goods, bending, stretching, walking, lifting, and reaching etc.



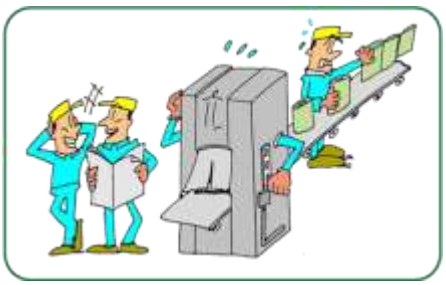
Before

After

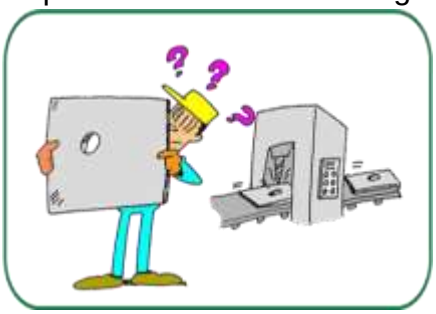
Transportation: Muda of transportation is transportation of materials over a long distance or re-piling up. This Muda is usually difficult to be totally eliminated but reducing is possible.

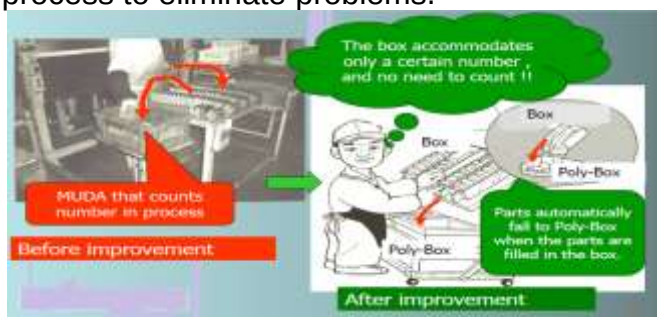


Waiting: Muda of waiting is when workers, machines or parts wait for an upstream process to deliver, for a machine to finish processing, and for parts or materials to come.



Over-processing: This Muda consists of unnecessary processing and operations. It is processing beyond the standard required by the customer. Eg. relying on inspections rather than designing the process to eliminate problems.





Defect making: This Muda of defect making includes defects, inspections for defects in-process, reworks, and resource loss.

Self-Check 1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define the word Kaizen? (3 points)
2. Write the origin of Kaizen and its emergence and dissemination in Ethiopia? (6 points)
3. What are the three pillars of Kaizen? (3 points)
4. What are the characteristics of Kaizen? (5 points)
5. What are the principles and benefits of Kaizen? (6 points)
6. List the elements of Kaizen. (8 points)
7. What does waste / Muda mean? (2 points)
8. What are the seven types of Muda identified in Toyota Production System? (7 points)

Note: **Satisfactory rating - 20 points** **Unsatisfactory - below 20 points**
You can ask your trainer for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

1. _____

_____

_____

_____

2. _____

_____

_____

_____

3. _____

_____

_____

_____

4. _____

_____

_____

_____

5. _____

_____

_____

_____

6. _____

_____

_____

_____

7. _____

_____

_____

_____

8. _____

_____

_____

_____

_____

Information Sheet 2	5S Basics

2. 5S basics

2.1 Definition of 5S

5S is a systematized approach to standardize work environment of an organization so as to create a workplace that is more organized, more efficient, safer, cleaner, and more pleasant to work in, and to maintain it on an on-going basis. The pillars of 5S are all Japanese words beginning with the letter S. Since their adoption within Western implementations of lean, various anglicized versions of the terms have been adopted by different writers and educators. 5S consists of: (1) Seiri = Sort; (2) Seiton = Set in Order; (3) Seiso = Shine; (4) Seiketsu = Standardize; (5) Shitsuke = Sustain.

5S represents a starting point of Kaizen, i.e., by establishing and maintaining standardization of work environment, it provides the basis for future improvements in the operations of the organization. These five pillars represent a starting point for any company that seeks to be recognized as a responsible manufacturer eligible for world-class status. On one hand, 5S is only possible with the participation of the

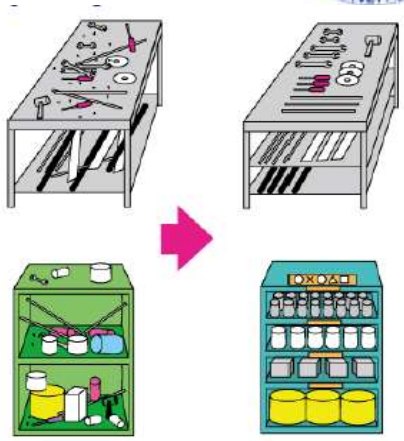
workplace employees. On the other hand, practicing 5S on an ongoing basis results higher motivation and more participatory attitudes at the workplace, which become the common ground for all Kaizen activities. 5S is practiced in many countries and translated in many languages as shown below.

"5S" in many languages

2.2 The five pillars of 5S

Sort: is the 1st of the five components of 5S. Sort means sorting out necessary and unnecessary items in the workplace, dispose of the unnecessary and keep only those items necessary for the current operations of the workplace.

Set in order: is the 2nd of the five components of 5S. Set-in-order means deciding the place for necessary items, arrange them to keep easy access, and display signs so that they can be found immediately and returned or replenished properly.

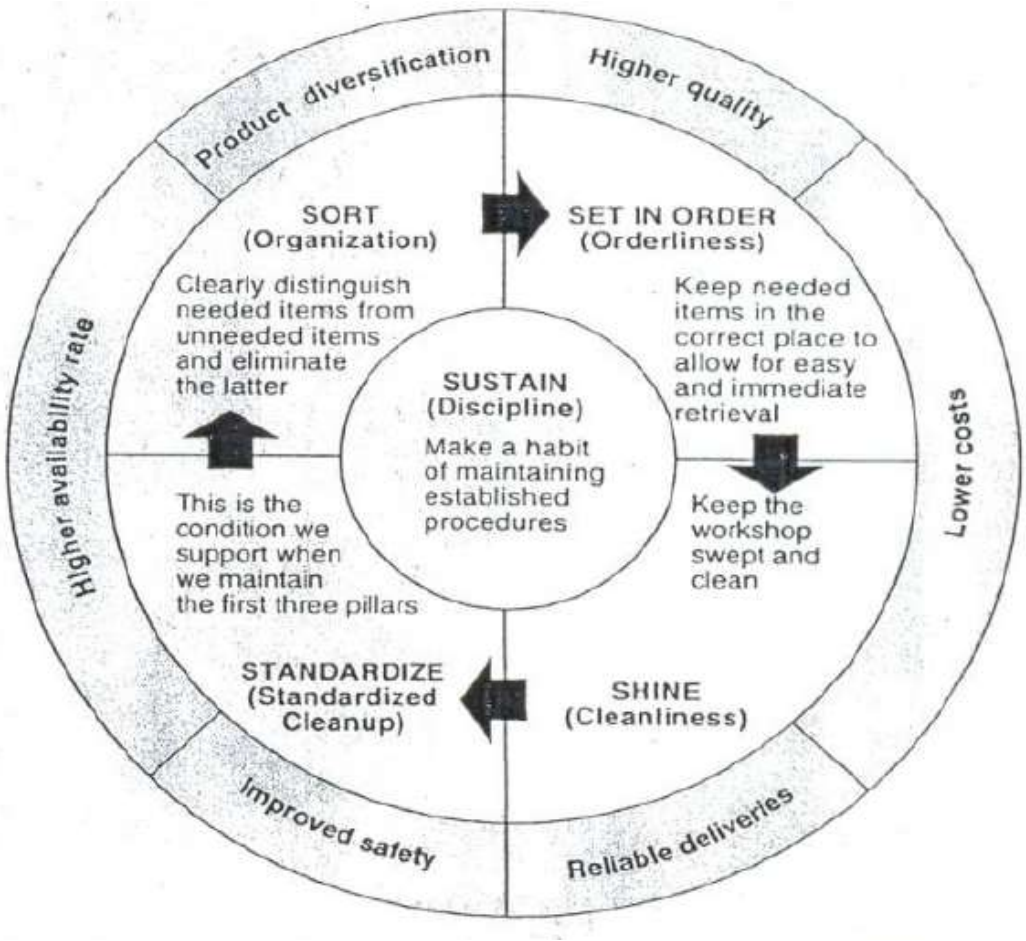


Shine: is the 3rd of the five components of 5S. It means cleaning equipment, facilities and floor space in the workplace, and ensure that they are in good operating condition.

Standardize: is the 4th pillar of 5S. Standardize means maintain organized and clean workplaces by making Sort, Set in Order, and Shine activities integrated into everyone's regular work.

Sustain: is the 5th of the five components of 5S. Sustain means making a self-disciplined habit of maintaining procedures, rules and arrangements of the organisation.

Summary of 5S



2.3 Benefits of 5S

The 5S system sounds so simple that people often dismiss its importance. However the fact remains that 5S:

- Makes your workplace safer, cleaner and more pleasant place to work.
- Makes your job more satisfying.
- Eliminates overburdens and disappointments.
- Makes it easier to communicate with everyone you work with.
- Gives you an opportunity to give creative input how your work place should be.
- Decreases and makes defects zero that brings higher quality
- Eliminates waste that reduces cost
- Avoids delays and bring reliable delivery
- Increases safety by decreasing accidents
- Increases productivity by decreasing breakdown
- Reduces complaint and brings greater confidence and trust

Before After

2.4 Stages of 5S implementation

The three stages of implementing 5S are:

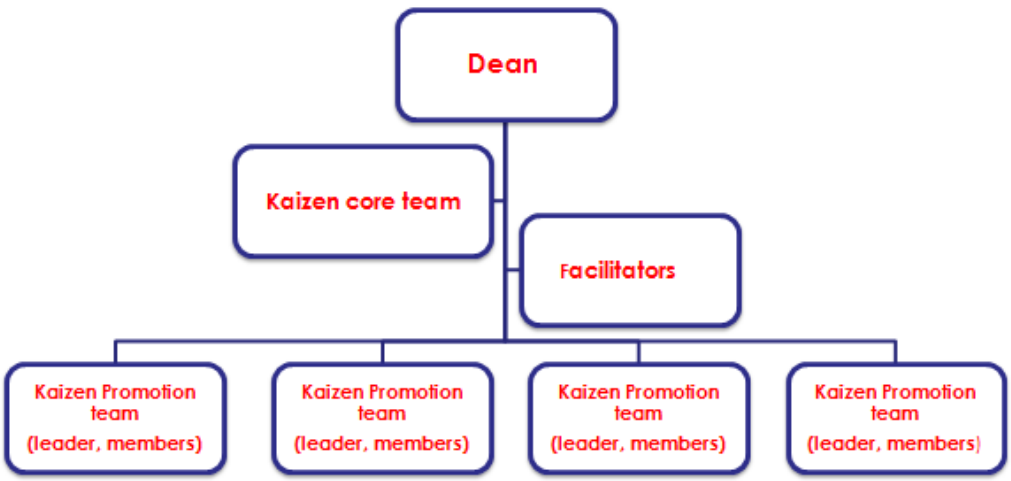
- Planning
- Implementation
- Sustaining

2.4.1 Planning

Steps for planning include:

1. Form Kaizen Team organizational structure
2. Recognize current condition
3. Deciding activity range
4. Goal setting
5. Planning stage
6. Budgeting
7. Kick-off

1. Kaizen Team Organizational Structure



The management body or Kaizen core team with a structure similar to this diagram provides guidance and direction on 5S and company-wide Kaizen activities. Prepare over all 5S or all Kaizen implementation plan, follow up 5S or Kaizen activities, perform any other 5S or Kaizen related activities, organize training etc.

Duties of facilitators is to follow up the activities of KPT's activities, collect information about the KPTs and report to the core team, document plans, reports and results, consult KPTs, distributes all Kaizen formats to the KPTs, assist KPTs' activities related to kaizen, etc.

2. Recognition of current condition

Purpose : Recognize the current condition of workplace and collect information required to identify problems, and set the direction of activity and goals.

Method : 5S Checklist
Photography

Procedure : kaizen promotion office gives instructions

5S checklist

	A	B	Evaluation items	Evaluation po	Remarks about problems
Seiri	○		1) Necessary things and unnecessary things can be identified easily.		
	○		2) Unnecessary things are discarded, or clarified in time limit for handling.		
	○		3) Quantity of each thing is kept as specified.		
	○		4) Bulletins and control sheets are replaced with updates.		
			Subtotal		
Seiton	○		5) Things are located at each given place.		
	○		6) Fixed positions of things are clarified by signboard, delineating, etc.		
	○		7) Things are positioned so as to facilitate first-in first-out system.		
	○		8) Small improvement realizes easy transfer of things into and from each given place.		
			Subtotal		
Seiso	○		9) There are no stain, trash, dust, etc. (facilities, floor, building, lighting, etc.)		
	○		10) Upstream solutions are provided against stain, trash, dust, etc.		
	○		11) Voluntary inspection of facilities is conducted.		
	○		12) Processes, aisles, etc. are delineated with paint colors, etc. so that cleaning area can be easily identified.		
	○		13) There are no stain/separation/unevenness/cracks in painted/delineated part on the floor.		
	○		14) There are no obstacles on aisles. (carts, pallets, parts, etc.)		
	○		15) Cleaning is facilitated with creative efforts.		
			Subtotal		
Seiketsu		○	16) Judgment criteria for necessary/unnecessary things are specified.		
		○	17) Judgment criteria for disposing unnecessary things are specified.		
		○	18) Quantities of necessary things are specified.		
		○	19) Fixed positions of necessary things are specified by signboards, layout chart, etc.		
		○	20) Heights of racks, etc. are specified.		
		○	21) Method/procedure/responsible person/time frame of cleaning are specified.		
		○	22) Contents/procedure/responsible person/time frame of voluntary facility inspection are specified.		
	○		23) Workers keep neat appearance and have no stain on their clothes, etc.		
	○		24) Progress/normality/abnormality in 3S (Seiri, Seiton, Seiso) can be easily identified.		
	○		25) Comfortable worksite is maintained through repeated 3S activity.		
			Subtotal		
Shitsuke		○	26) Annual policy for 5S activity is set.		
		○	27) Annual basic plan for 5S activity is set.		
		○	28) 5S activity plan is set for each worksite.		
		○	29) Awareness campaign, education, events, and patrols are included in activity plan.		
		○	30) 5S evaluation sheet is specially prepared for each worksite.		
		○	31) Supervisor prepares "Shitsuke Evaluation Sheet" for workers.		
	○		32) Supervisor repeatedly instructs workers on their weak points in Shitsuke.		
	○		33) Patrols by the person in each duty position are provided.		
	○		34) Responsible persons for patrols properly give advices and take actions.		
	○		35) Activity bulletin board is efficiently utilized for timely notice and understandability.		
	○		36) Bottom-up activities such as small improvements are invigorated.		
			Subtotal		

Items to evaluate the system of 3S (Red Tag Operation, Signboard Operation, and Tidy-it-Up Operation)

A: Evaluation of appearance
B: Evaluation of system completion

Total	/105
Achievement rate	%

<Evaluation criteria>

Grade the results of each activity in each evaluation item on a scale of zero to three as follows:

3 points	85% or more
2 points	60% or more but less than 85%
1 point	30% or more but less than 60%
0 point	Less than 30%

Photography

(1) Fixed-point Observation Type

Fix the location of the camera and do photo shoots at the same place both before and after KAIZEN.

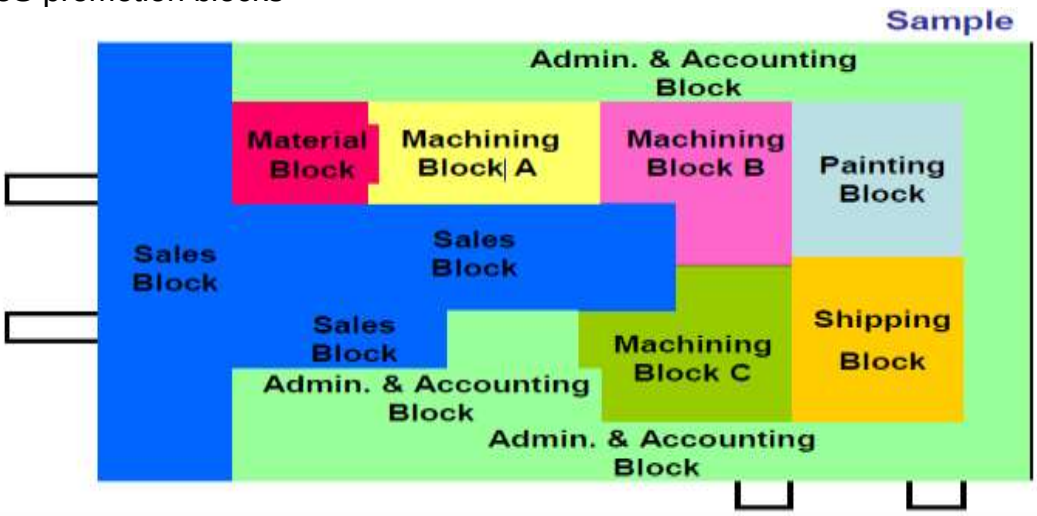
Before KAIZEN

After KAIZEN

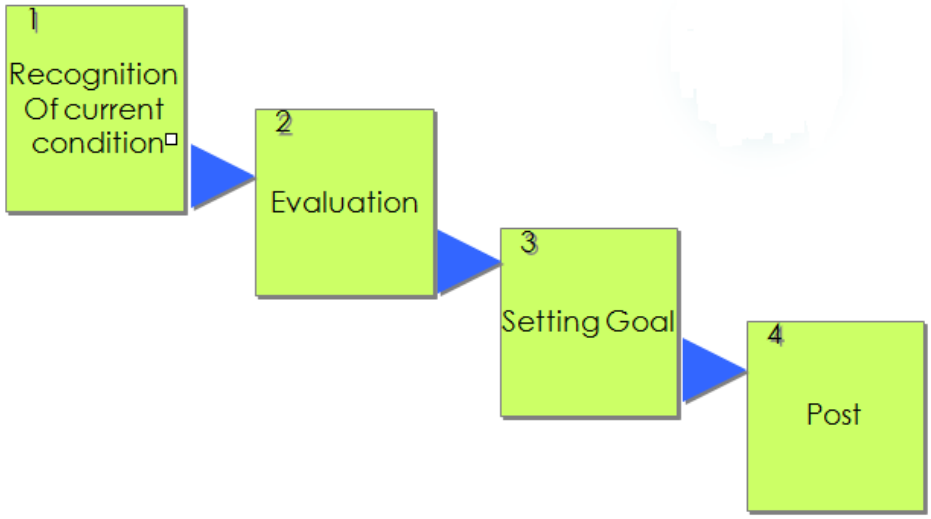
(2) Random Type

3. Decide Activity range

Decide 5S promotion blocks



4. Goal setting

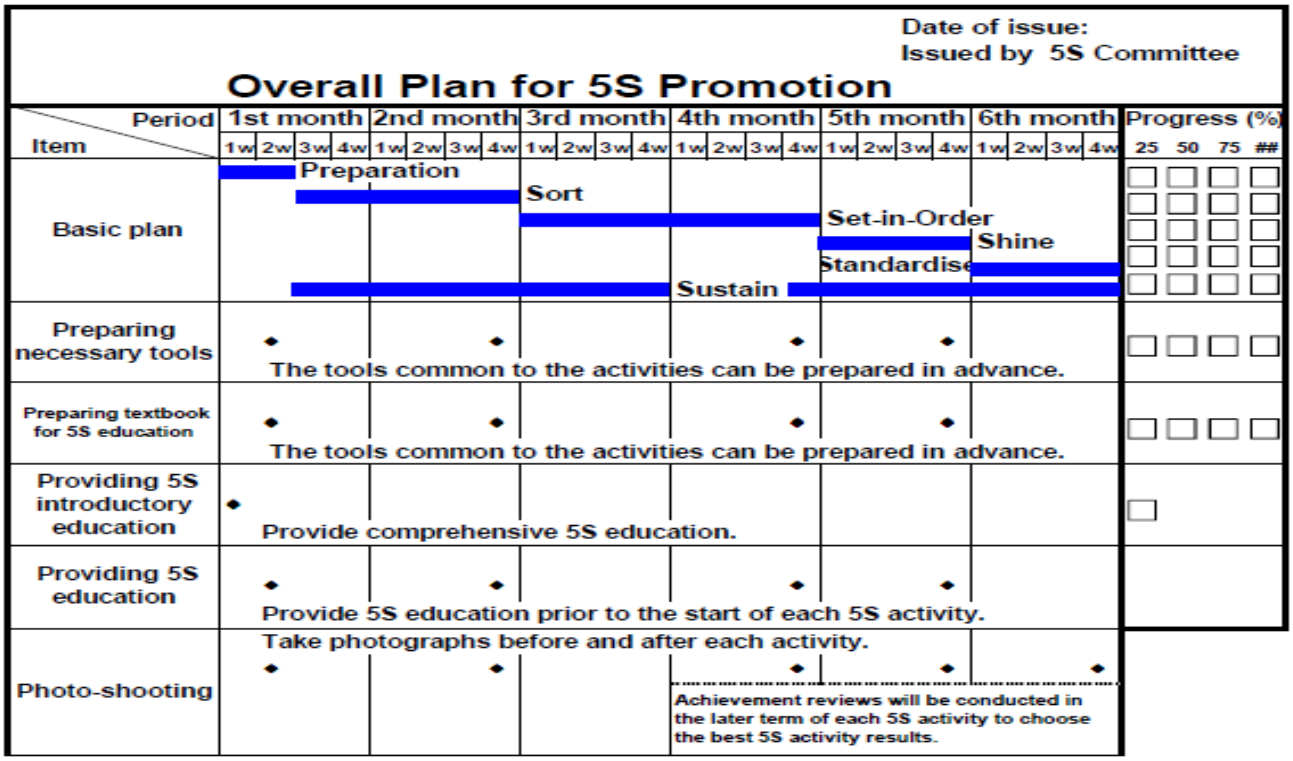


5. Planning

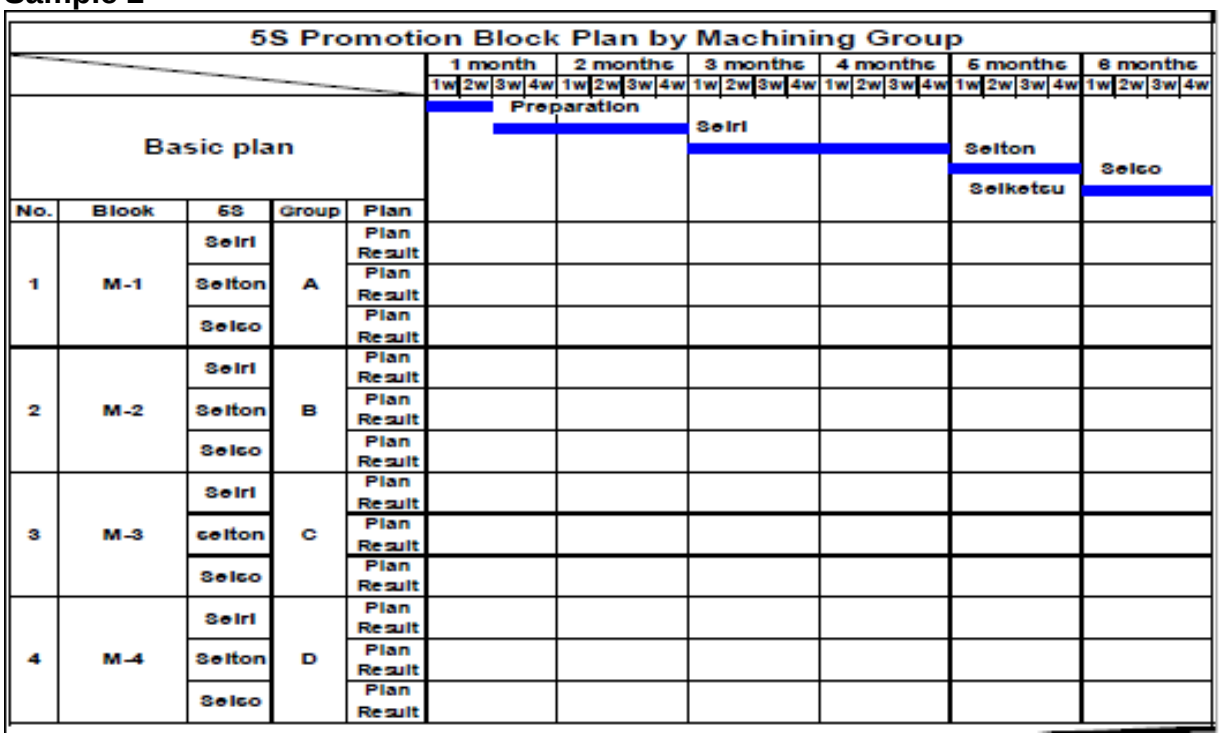
1) Overall promotion plan

The following sample formats can be used to prepare a plan for 5S implementation.

Sample 1



Sample 2



2) Setup of activity time

The following table shows example of activity time plan for the 3rd component of 5S i.e. shine.

Type of cleaning	Time	Frequency (timing)
Daily cleaning	5 – 10 min.	Minor operation before/after working hour at each shop
Weekly cleaning	15 – 30 min.	Weekend
Monthly cleaning	30 – 60 min.	End of month
Big cleaning days	2 – 4 hrs.	Before national holidays
Location which is not easy to clean	1 – 2 days	In case of necessity for assistance request to other division

3) Training plan

A training plan is prepared to conduct training on 5S and other Kaizen techniques.

6. Budgeting

It is necessary to prepare a budget for 5S activity because it costs money although it needs small. Budget to buy signboards, labels, paint, etc.

7. Kick-off (Declare 5S implementation)

2.4.2 Implementation

There are procedures for implementation of each of the pillars of 5S that will be explained in the following contents. Four factors are important for successful 5S implementation. These are:

- Continued commitment and support by top management.
- 5S starts with education and training.
- There are no observers in 5S, everyone participates.
- Repeat the 5S cycle in order to achieve a higher standard.

2.4.3 Sustaining stage

Different sustaining techniques for 5S, that will be described in the following sections, are used at this stage. This stage means performing the activities repeatedly and patiently in order to sustain 5S activity. Success of 5S depends on supervisor's ability to sustain the gains acquired from 5S activity.

Self-Check 2	Written Test

***Instructions**:* Answer all the questions listed below. Write your answers in the sheet provided in the next page.

1. What are the 5S? (5 points)
2. What are the benefits of 5S? (5 points)
3. What are the three stages of 5S implementation? (3 points)
4. What are the steps for 5S planning? (7 points)
5. Name two methods to recognize or collect data about the current condition of a work place. (2 points)

Note: **Satisfactory rating - 11 points** **Unsatisfactory - below 11 points**
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

1. _____

_____

_____

_____

2._____

_____

_____

_____

3._____

_____

_____

_____

4._____

_____

_____

_____

5._____

_____

_____

Information Sheet 3	Junior Kaizen Promotion Team (KPT)

3. Junior Kaizen Promotion Team (KPT)

3.1 Basics of KPT

The QCC method is a Japanese-made institutional development tool by which employees continuously strive for improvement in their work. It enhances people's problem-solving skills as a leading management policy in all types of organization. QC Circles are small groups consisting of front-line employees who continually and collectively find a problem and discuss on alternative remedies to control and improve the quality of their work, products and services.

Packing section workers as members of QCC

QCC are formed by a small group between three and ten members who do the same or similar work, voluntarily meeting together regularly for about an hour per week in paid time, usually under the leadership of their own supervisor, and trained to identify, analyze, and solve some of the problems in their work, presenting solutions to management, and where possible, implementing the solutions themselves.

QCCs solve problems autonomously related to workplace such as problems of quality, cost, morale, safety etc. QCCs use several kaizen tools like QC 7 tools (Pareto diagram, Fishbone diagram etc), 5S, Brainstorming, Why-Why Approach, 5W1H etc. Activities of QC Circle are to learn through QC Circle, to manage the work place (workplace rules, standards, 5s…) and solve problems at the work places.

3.2 Aims and Benefits of KPT

- To develop members capabilities.
- To make the workplace more pleasant, vital and satisfying.
- To improve customer satisfaction and contribute to society.
- To create good workers relationship or team spirit through close discussion.
- To develop recognition of importance of work and raise responsibility.
- To establish discipline in workplace and do proper work by reducing mistakes.

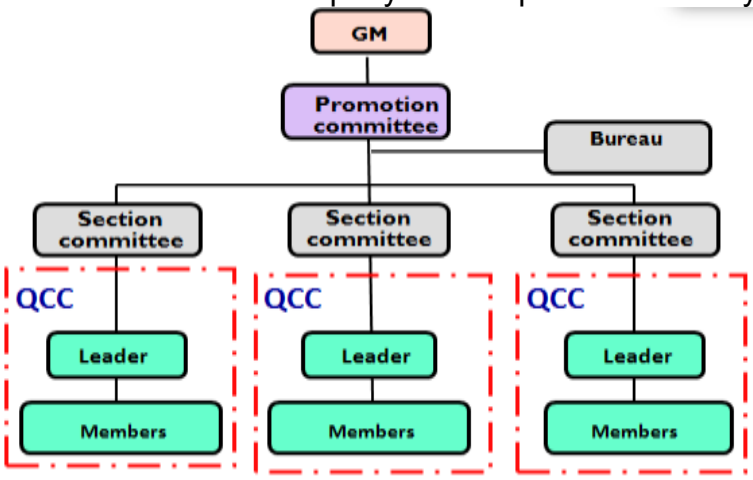
3.3 The Principles of KPT

- ✓ Every job is capable of being improved.
- ✓ People do not resist change, they resist being externally changed.
- ✓ Every employee is capable of attaining excellence in his work & the basic ability to improve the job.

- ✓ People like to improve their job and derive satisfaction out of it provided they are involved through human touch, recognition & reward.
- ✓ People like to participate in groups and crave for attention.
- ✓ People have integrity and can be highly creative.
- ✓ A man who does the job knows best about the job at least they know the problems of the job.

3.4 The structure and role of the components of KPT

QCC/KPT structure is governed by unique conditions and eventually, integrated and the concept woven in the fabric of company's total operations as way of life.



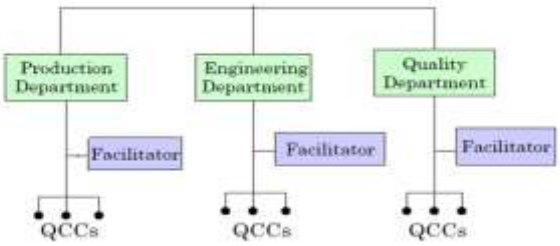
Role of Promotion committees/Kaizen Core Team

- ➢ Set clear policy and goal for QCC/KPT program in the company.
- ➢ Establish operational guidelines & plans (master plan, plan on how to monitor, evaluate & recognize the exemplary performance of QCC leaders, members)
- ➢ Follow the condition of QCC.
- ➢ Give guidance, support, and cooperate actively.
- ➢ Coordination of QCC activities in the company.
- ➢ Formulate a budget for the program and identify sources of funds.
- ➢ Define qualifications and functions of facilitators (section committees).
- ➢ Evaluate the overall status of the QC Circle program, including training, rewards and recognition, promotional activities at least once a year using criteria and give advice as needed.
- ➢ Formulate corrective and preventive actions based on findings in the evaluation.

Role of Section committees/ facilitators

- ➢ Provide active support to the QCC & motivate QCC leaders & members.
- ➢ Organizes training courses & programs for new QCC.
- ➢ Organize QCC presentations.
- ➢ Coordinate and ensure availability of facilities to all QCC.
- ➢ Act as a counsellor to Promotion committee and QCC leaders.
- ➢ It implements the policies and plans formulated by the Promotion Committee.
- ➢ It handles all paperwork and maintains records like the QC Circle registry, minutes of meetings, and QC Circle cases.
- ➢ It organizes promotional activities like competitions and visits to other companies with QC Circles.

- Each department selects one to three facilitators, depending on the size of the company.
- In the beginning, one facilitator is usually assigned to three QC Circles.
- The QC Circle leaders call on the facilitator when they need support during meetings.



Role of Leader

- Conducting QC Circle meetings & direct activities of QC circle.
- Make clear the purpose of the QC circle's activities.
- Perform as a member in the QC circle activities.
- Maintain good atmosphere in which all members can express their opinions.
- Establish annual activity plan.
- Encouraging members
- Train next leader.
- Participating in industry-wide conventions.
- Studying about QC Circle activities and disseminating the knowledge.
- Seeking advise and support from the QCC Office on behalf of its members
- Manage QC circle activities with appropriately assigning roles to all the members.

Member's role

- Follow the workplace rule and discipline.
- Members listen to each other at all times.
- Participate and speak actively in QC Circle me
- Perform and be responsible to assigned activi
- Cooperate with other members.
- Arrive at meetings on time.

3.5 Stages of KPT

The development of KPT in Ethiopia by EKI follows four stages of Kaizen implementation junior to medium, high level and lead QCCs/KPTs.

3.5.1 Junior KPT

Junior KPT implement the first level Kaizen which consists of understanding basics of Kaizen, organizing Kaizen Promotion Teams (KPT) and introducing simple Kaizen technical tools (5S, waste/Muda elimination tools). The KPT at this stage develop their Kaizen knowledge, skill and attitude and become able to create an organized and pleasant work place.

3.5.2 Middle/Medium KPT

Medium level KPT implement the second Level Kaizen that includes some advanced Kaizen tools and systems such as Total Quality Control (CWQC), preparing Standard Operation Procedures (SOP), using Basic Industrial Engineering techniques, Quality Control Tools (7QC Tools) and QC Story line. The KPT at this stage will develop their statistical, analytical and technical Kaizen knowledge and can solve work related problems autonomously.

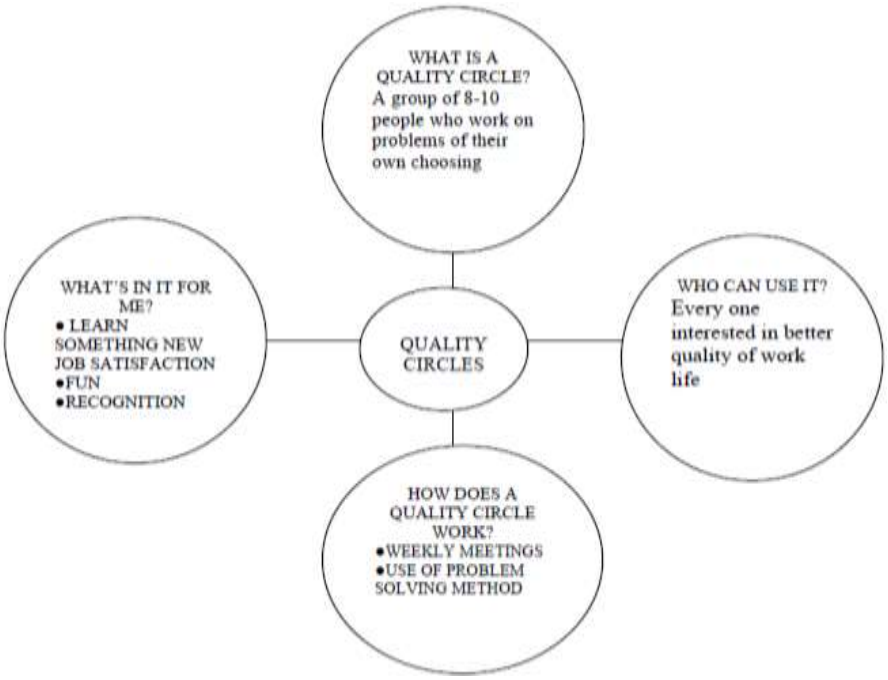
3.5.3 Higher KPT

The more advanced third Kaizen level is implemented by High level KPTs that consists of having the understanding of Kaizen knowledge related to Toyota Production System, Total Productive maintenance, Total Quality Management, Value Engineering and/or Value Stream Mapping, Industrial Engineering tools, policy deployment and more complex analytical tools and skills.

3.5.4 Lead KPT

Lead KPT are most developed KPT which can implement the fourth and highest level of Kaizen. This KPT can develop advanced management system, principles, models and innovations based on accumulated experiences and best practices.

Quality Circle in a Nutshell

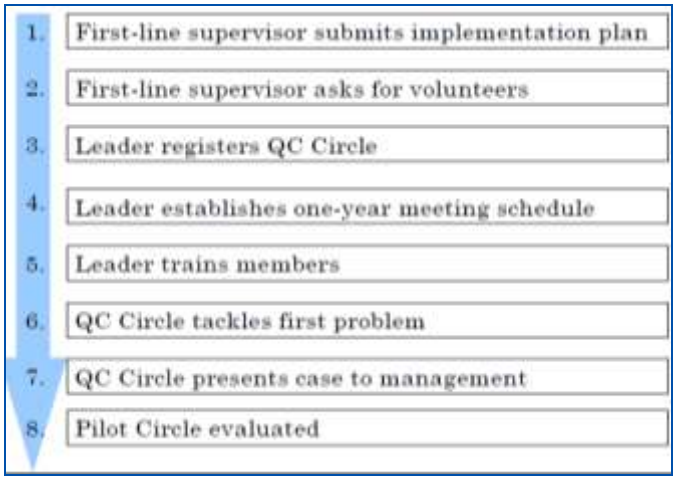


3.6 Establish Junior KPT

3.6.1 QC Circle Introduction Process

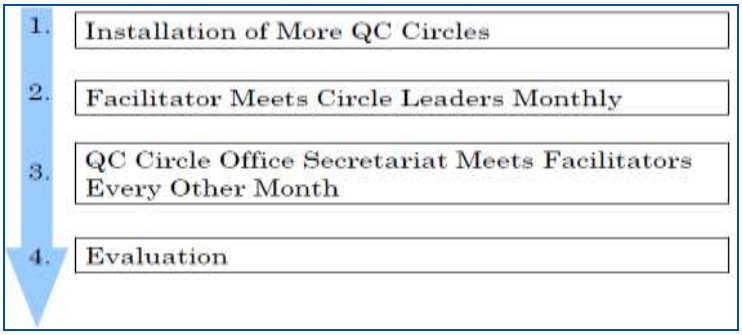
3.6.2 Implementation - Launch of a Pilot Circle

QCC program are tried on a small scale for prior experience. First-line supervisors start on a voluntary basis so as to encourage their subordinates too. The implementation stage consists of eight steps:



3.6.3 Sustaining QC Circle Activities

Implementation of a Company-wide QCC Program based on pilot experience, more Circles are organized depending on Steering Committee plans following the same training procedures.



3.7 Method of communication in a team

Teamwork can provide a real opportunity for people to work together to achieve improvement. People who work on their own are often unfamiliar with the work that is done even by people who work quite near to them: as a result, they are unaware of the consequences of poor quality in the work they themselves do. Bringing people together in teams, with a common goal of improvement, aids communication between departmental or functional activities. Teamwork slowly breaks down the communication barriers and acts as a platform for change. Communication is part of the cement that holds together the bricks of Kaizen processes supporting the principle of people-based management.

To communicate properly, it is necessary to focus on the receiver of the message. Communication is very much a two-way process. For successful communication, you need to build credibility into the message and in the person giving the message. Anything that detracts from this does damage to both. Teamwork also enables a group of people to work as a task force, looking at cross-functional problems, or as an action team, solving local problems, in order to identify and adopt new ways of doing things.

Effective communication: is an essential facet of people management. For business success, regular, two-way communication, particularly face to face with employees and team members, is an important factor in establishing trust and a feeling of being valued. Two-way communication is regarded as both a core management competency and as a key management responsibility. For example, a typical list of management responsibilities for effective communication is to:

- Regularly meet all the members.
- Ensure people are briefed on key issues in a language free of technical jargon.
- Communicate honestly and as fully as possible on all issues which affect the employees.
- Encourage team members/employees to discuss company issues and give upward feedback.
- Ensure issues from team members/employees are fed back to senior managers and timely replies given.

Brainstorming: Brainstorming is a method of getting a group of people to generate a lot of ideas in a short space of time without assessing their value. Group thinking usually produces more ideas than individual thinking. It is used in teams, when trying to identify possible root causes or when seeking solution to a problem. Brainstorming can also be used when deciding what problem or improvement activity to work on, and when planning the steps of a project.

Brainstorming is a technique that was developed in 1930 by Alex Osborne as a way of encouraging groups to be more creative with their ideas. It is important to recognize that there are barriers to creative thinking. One is the tendency to assume that the way things have always been done is the only way they can be done. We often hear people say, “Yes, but we’ve always done it this way!” Another barrier is the fear of looking foolish. This fear limits our range of contribution—to things that are safe and conventional—and leads to our giving the expected answer. A third barrier is the tendency to make hasty judgment on what is said, without careful consideration. How many ideas get thrown in the waste bin without anyone really

thinking about them and trying them, merely because they initially seem impractical, impossible, or crazy? A fourth barrier is the commonly held view that there is always one right solution to every problem. This leads people to look for the obvious and logical answer rather than the less obvious, creative solution.

Brainstorming seems very simple. It works best when the team meeting is informal. To help this there are eight basic rules:

1. Keep the meeting relaxed.
2. Select a leader to write the ideas on a flip chart.
3. Involve the right people in the team.
4. Define the problem clearly. You will need to check that everyone present has the same understanding of the problem. This can be difficult to achieve in practice. A useful first stage of any brainstorm could involve a brief discussion of the problem before a definition is agreed.
5. Generate as many ideas as possible without discussion or evaluation. The more creative ideas the better. There are two main ways of doing this. The first is simply to invite people to contribute and write the ideas down as they are suggested. This is called the 'free wheeling' method. The second is to go round the room asking each person in turn for his or her contribution. This is called the 'round robin' method.
6. Encourage everyone to contribute. This is best done by beginning the session with a trivial example, such as 'uses of a paper cup', to get everyone started before moving on to the question in hand.
7. Write down every idea. There should be no censorship and there is no such thing as a bad idea. Sometimes strange ideas open up a new area of thought. Build on other people's ideas.
8. Following the brainstorm, a technique such as list reduction method should be used to reduce the brainstormed list to manageable proportions.
9. Don't criticize other people's ideas.
10. Every member should speak freely, there are no dumb ideas.

Benefits of brainstorming: by encouraging everyone to contribute, brainstorming breaks down barriers between departments and levels of hierarchy. It therefore allows everyone to contribute equally to the team. Brainstorming encourages cooperative and collaborative behavior and is also useful in the development of group work skills. Remember that brainstorming involves collecting people's ideas and opinions and that it might be necessary to collect data following the brainstorm to allow any decisions to be taken on the basis of fact.

3.8 Concept and parts of Kaizen board

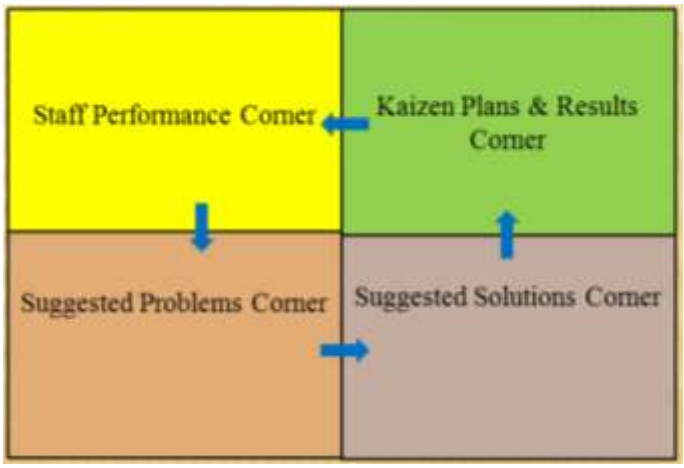
Kaizen board is a bulletin board set up at a workplace or in a publicly accessible place in the factory or the company in order to disseminate information about the Kaizen activities at the workplace and the company. Information put up on the board includes various Kaizen-related news and announcements, either company-wide one or particular workplace related. A summary of QC Circle activity result can be posted. It is a means of management -employee communication. Information sharing in this manner helps foster employees' sense of participation, recognition and motivation in Kaizen activities.

Every working team or KPT has to prepare and use a Kaizen board. This encourages for the teams to work "as independent as possible" and transform their

ideas to improvements. As long as every team uses a Kaizen board, it becomes also easy for the management to be informed at any time, just by walking around and checking the information on the board. In general a Kaizen board is important for:

- Continuous Kaizen activity in a company or organization.
- Participation of all employees during Kaizen activity through Suggestion system.
- Employees including management to know about Kaizen performance in their work area or organization.
- Employees and management to know about production plans and performance.

The size of a Kaizen board should be 2 times a flip chart paper. It has four corners or parts depending on the information displayed.



- The “staff performance corner” shows the actual performance of the staff and the gabs and training needs. The staff performance can be shown on the Kaizen board using different colors such as red for low performer, blue for average performer, and green for best performer.
- The “Kaizen plans & results corner” shows the results generated from implementing Kaizen activities. Improvement graphs can be displayed and should be updated regularly at least on weekly basis. If the results are below the planned target, the team has to discuss and find the root cause and implement solution.
- The “suggested problems corner” is the place where every team members’ ideas or identified problems are posted. The posted problems have to be discussed and solved by the teams and the solutions should be displayed on the next corner i.e. “suggested solutions corner”.
- The “suggested solutions corner” displays the solutions suggested for known problems. And the solution ideas have to be implemented and the results achieved have to be shown on the “Kaizen results corner”.

Self-Check 3	Written Test

Instructions: **Read the following questions and write your answers in the answer sheet provided:**

1. What are QCC or KPT? (3 points)
2. Describe the aims and benefits of QCC /KPT? (6 points)
3. What are the principles of QCC/KPT? (5 points)
4. Show by a diagram the structure of QCC/KPT? (5 points)
5. What are the roles of the components of QCC or KPT? (10 points)
6. What are the four stages of KPT categorized by EKI? (4 points)
7. What is a Kaizen board? (3 points)

Note: **Satisfactory rating - 18 points** **Unsatisfactory - below 18 points**
You can ask you teacher for the copy of the correct answers.

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

Short Answer Questions

1. _____

_____

_____

_____

2. _____

_____

_____

_____

3. _____

_____

_____

_____

4. _____

_____

_____

_____

5. _____

_____

_____

_____

6. _____

_____

_____

_____

7. _____

_____

_____

_____

Operation Sheet 1	Recognition of current situation before implementing 5S

Use 5S checklist

	A	B	Evaluation items	Evaluation po	Remarks about problems
Seiri	○		1) Necessary things and unnecessary things can be identified easily.		
	○		2) Unnecessary things are discarded, or clarified in time limit for handling.		
	○		3) Quantity of each thing is kept as specified.		
	○		4) Bulletins and control sheets are replaced with updates.		
			Subtotal		
Seiton	○		5) Things are located at each given place.		
	○		6) Fixed positions of things are clarified by signboard, delineating, etc.		
	○		7) Things are positioned so as to facilitate first-in first-out system.		
	○		8) Small improvement realizes easy transfer of things into and from each given place.		
			Subtotal		
Seiso	○		9) There are no stain, trash, dust, etc. (facilities, floor, building, lighting, etc.)		
	○		10) Upstream solutions are provided against stain, trash, dust, etc.		
	○		11) Voluntary inspection of facilities is conducted.		
	○		12) Processes, aisles, etc. are delineated with paint colors, etc. so that cleaning area can be easily identified.		
	○		13) There are no stain/separation/unevenness/cracks in painted/delineated part on the floor.		
	○		14) There are no obstacles on aisles. (carts, pallets, parts, etc.)		
	○		15) Cleaning is facilitated with creative efforts.		
			Subtotal		
Seiketsu		○	16) Judgment criteria for necessary/unnecessary things are specified.		Items to evaluate the system of 3S (Red Tag Operation, Signboard Operation, and Tidy-it-Up Operation)
		○	17) Judgment criteria for disposing unnecessary things are specified.		
		○	18) Quantities of necessary things are specified.		
		○	19) Fixed positions of necessary things are specified by signboards, layout chart, etc.		
		○	20) Heights of racks, etc. are specified.		
		○	21) Method/procedure/responsible person/time frame of cleaning are specified.		
		○	22) Contents/procedure/responsible person/time frame of voluntary facility inspection are specified.		
	○		23) Workers keep neat appearance and have no stain on their clothes, etc.		
	○		24) Progress/normality/abnormality in 3S (Seiri, Seiton, Seiso) can be easily identified.		
	○		25) Comfortable worksite is maintained through repeated 3S activity.		
			Subtotal		
Shitsuke		○	26) Annual policy for 5S activity is set.		
		○	27) Annual basic plan for 5S activity is set.		
		○	28) 5S activity plan is set for each worksite.		
		○	29) Awareness campaign, education, events, and patrols are included in activity plan.		
		○	30) 5S evaluation sheet is specially prepared for each worksite.		
		○	31) Supervisor prepares "Shitsuke Evaluation Sheet" for workers.		
	○		32) Supervisor repeatedly instructs workers on their weak points in Shitsuke.		
	○		33) Patrols by the person in each duty position are provided.		
	○		34) Responsible persons for patrols properly give advices and take actions.		
	○		35) Activity bulletin board is efficiently utilized for timely notice and understandability.		
	○		36) Bottom-up activities such as small improvements are invigorated.		
			Subtotal		
	A: Evaluation of appearance			Total	/105
	B: Evaluation of system completion			Achievement rate	%

<Evaluation criteria>

Grade the results of each activity in each evaluation item on a scale of zero to three as follows:

3 points	85% or more
2 points	60% or more but less than 85%
1 point	30% or more but less than 60%
0 point	Less than 30%

Photography

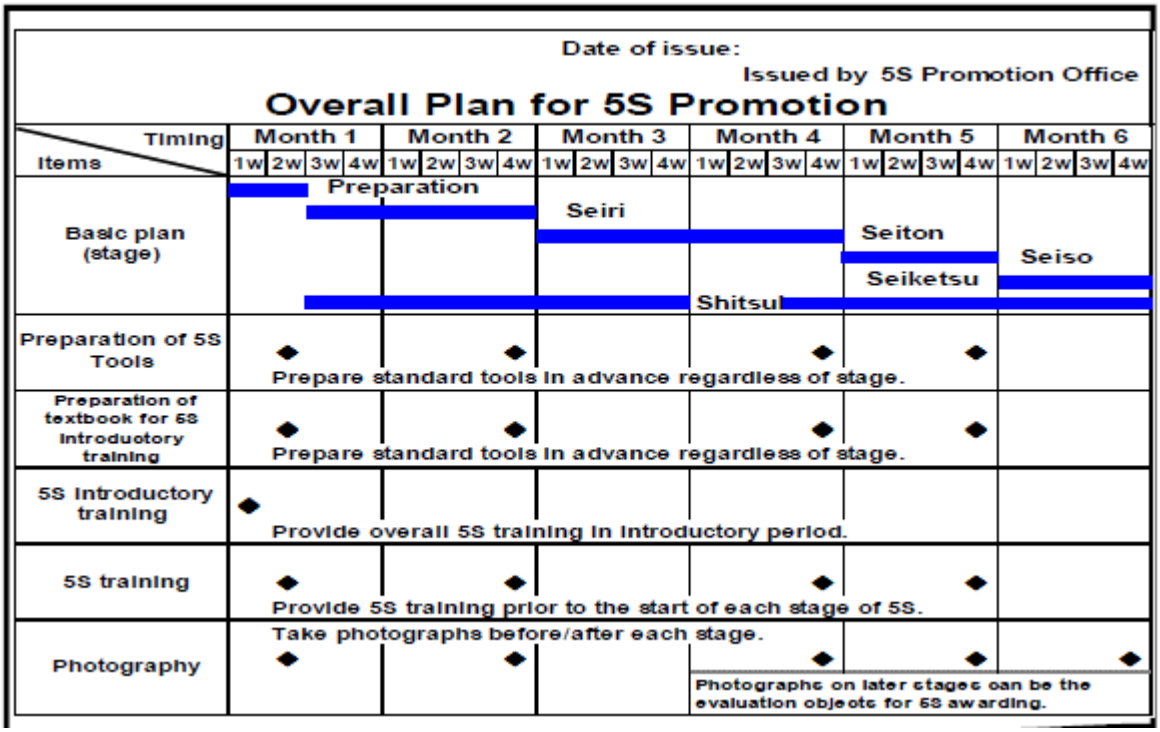
(1) Fixed-point Observation Type: Fix the location of your camera and do photo shoots at the same place both before and after 5S.

(2) Random Type: take photos of places randomly that need 5S implementation.

Operation Sheet 2	Preparing plan for 5S implementation

1) 5S promotion plan (sample)

The following template can be used to prepare a plan for 5S implementation.



2) This template can be used to prepare plan for 5S.

Activities	Timing							
	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Establish KPT								
Recognition of current place								
Decide target areas								
Set goal								
etc								

Operation Sheet 3	Prepare Kaizen board

Materials

- Chip wood
- measuring tape
- Sponge
- nails
- hook
- Cloth
- Others

Size is two times flip chart

Materials needed when using Kaizen board

- Pins: green, red, and blue - (red for low performer, blue for average performer, and green for best performer).
- Markers
- Problem and solution formats
- Plaster
- Papers

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, workshop, tools and materials you are required to perform the following tasks.

Task 1: Using the given 5S check list, study the current situation of your workshop.

Task 2: Using the given template, prepare plan for 5S implementation in your workshop.

Task 3: Make a Kaizen board and make it ready for use.

List of Reference Materials

1. KAIZEN: The Key to Japan's Competitive Success (1986)
2. 5S for operators (1995)
3. Ethiopian Kaizen Manual (2011)
4. Journals/publications/magazine

Experts

The development of this Learning Gide for the TVET Program Information technology support service Level I.

No	Name of Trainers	Phone Number	E-mail Address	Region
1	Abdulakim Ahemed	0921900418		Harari
2	Assefa Million	0911034866	amen192005@gmail.com	Harari
3	Derese Teshome	0913938439	dereseteshome@gmail.com	AA
4	Getenesh Osamo	0923816933	gete.osamo@gmail.com	SNNPR
5	Remedan Mohammed	0913478937	remedanm77@gmail.com	Harari
6	Sewayehu W/Yohanes	0911716733	Baroke0816@gmail.com	SNNPR
7	Damelash Yihalem	0911912015	demenati@gmail.com	Harari