CASE STUDY 1

PROCESS IMPROVEMENT AT MCA ASSEMBLY STATION

(IMPLEMENTATION OF SCREW MASK ON STEERING WHEEL WHILE SCREWING)

CASE STUDY 1

PROCESS IMPROVEMENT AT MCA ASSEMBLY STATION

(IMPLEMENTATION OF SCREW MASK ON STEERING WHEEL WHILE SCREWING)

AIM:-

Improve the process of Assembly at MCA station.

PROBLEM STATEMENT:-

There was a customer complaint that there was an extra screw fallen in the steering wheel.

OBSERVATIONS:-

- While assembly of steering wheel four screws are required. Worker take at a time four screws in hand mistakenly from his hand screw is fallen in steering wheel.
- Due to complex construction of inside steering wheel worker did not realize that there is extra screw fallen in steering wheel.

OBJECTIVES:-

- Close the point of customer complaint by taking action on it.
- Improve the process by developing Screw Mask which is size of inside steering wheel.

METHODOLOGY:-

CONTINUOUS IMPROVEMENT:-

A continual improvement process, also often called a continuous improvement process (abbreviated as CIP or CI), is an ongoing effort to improve products, services, or processes. These efforts can seek "incremental" improvement over time or "breakthrough" improvement all at once. Delivery (customer valued) processes are constantly evaluated and improved in the light of their efficiency, effectiveness and flexibility.

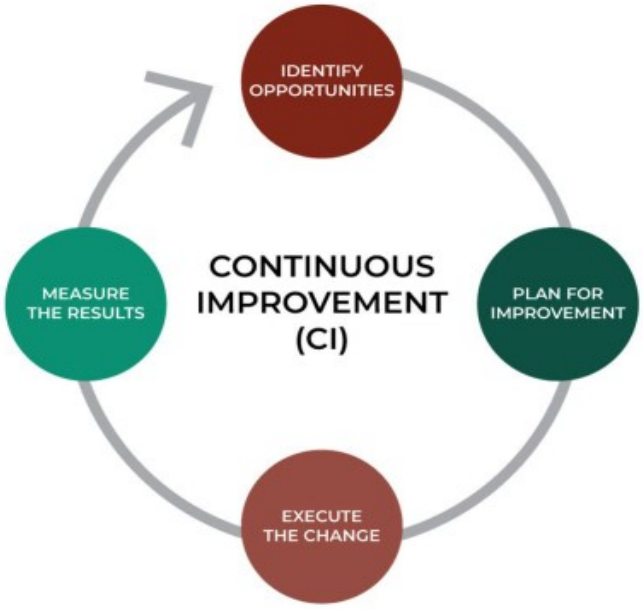


Figure 1.1

A broader definition is that of the Institute of Quality Assurance who defined "continuous improvement as a gradual never-ending change which is: 'focused on increasing the effectiveness and/or efficiency of an organization to fulfill its policy and objectives. It is not limited to quality initiatives. Improvement in business strategy, business results, and customer, employee and supplier relationships can be subject to continual improvement. Put simply, it means ‘getting better all the time’.

KAIZEN:-

Kaizen is the Sino-Japanese word for "improvement". In business, kaizen refers to activities that continuously improve all functions and involve all employees from the CEO to the assembly line workers. It also applies to processes, such as purchasing and logistics that cross organizational boundaries into the supply chain. It has been applied in healthcare psychotherapy,] life-coaching, government, and banking.

By improving standardized programs and processes, kaizen aims to eliminate waste (see lean manufacturing). Kaizen was first practiced in Japanese businesses after World War II, influenced in part by American business and quality-management teachers, and most notably as part of The Toyota Way. It has since spread throughout the world and has been applied to environments outside business and productivity.

The Japanese word kaizen means "change for better", without inherent meaning of either "continuous" or "philosophy" in Japanese dictionaries and in everyday use. The word refers to any improvement, one-time or continuous, large or small, in the same sense as the English word "improvement". However, given the common practice in Japan of labeling industrial or business improvement techniques with the word "kaizen", particularly the practices spearheaded by Toyota, the word "kaizen" in English is typically applied to measures for implementing *continuous* improvement, especially those with a "Japanese philosophy". The discussion below focuses on such interpretations of the word, as frequently used in the context of modern management discussions. Two kaizen approaches have been distinguished:

- Flow kaizen
- Process kaizen

The former is oriented towards the flow of materials and information, and is often identified with the reorganization of an entire production area, even a company. The latter means the improvement of individual work stands. Therefore, improving the way

production workers do their job is a part of a process kaizen. The use of the kaizen model for continuous improvement demands that both flow and process kaizen are used, although process kaizen are used more often to focus workers on continuous small improvements. In this model, operators mostly look for small ideas which, if possible, can be implemented on the same day. This is in contrast to traditional models of work improvement, which generally have a long lag between concept development and project implementation.

Kaizen is a daily process, the purpose of which goes beyond simple productivity improvement. It is also a process that, when done correctly, humanizes the workplace, eliminates overly hard work (*muri*), and teaches people how to perform experiments on their work using the scientific method and how to learn to spot and eliminate waste in business processes. In all, the process suggests a humanized approach to workers and to increasing productivity: "The idea is to nurture the company's people as much as it is to praise and encourage participation in kaizen activities." Successful implementation requires "the participation of workers in the improvement."People at all levels of an organization participate in kaizen, from the CEO down to janitorial staff, as well as external stakeholders when applicable. Kaizen is most commonly associated with manufacturing operations, as at Toyota, but has also been used in non-manufacturing environments. The format for kaizen can be individual, suggestion system, small group, or large group. At Toyota, it is usually a local improvement within a workstation or local area and involves a small group in improving their own work environment and productivity. This group is often guided through the kaizen process by a line supervisor; sometimes this is the line supervisor's key role. Kaizen on a broad, cross-departmental scale in companies, generates total quality management, and frees human efforts through improving productivity using machines and computing power.

While kaizen (at Toyota) usually delivers small improvements, the culture of continual aligned small improvements and standardization yields large results in terms of overall improvement in productivity. This philosophy differs from the "command and control" improvement programs (e.g., Business Process Improvement) of the mid-20th century.

Kaizen methodology includes making changes and monitoring results, then adjusting. Large-scale pre-planning and extensive project scheduling are replaced by smaller experiments, which can be rapidly adapted as new improvements are suggested.

In modern usage, it is designed to address a particular issue over the course of a week and is referred to as a "kaizen blitz" or "kaizen event". These are limited in scope, and issues that arise from them are typically used in later blitzes. A person who makes a large contribution in the successful implementation of kaizen during kaizen events is awarded the title of "Zenkai". In the 21st century, business consultants in various countries have engaged in widespread adoption and sharing of the Kaizen framework as a way to help their clients restructure and refocus their business processes.

Ten principles of Kaizen

Because executing Kaizen requires enabling the right mindset throughout the company, 10 principles that address the Kaizen mindset are commonly referenced as core to the philosophy. They are:

1. Let go of assumptions.
2. Be proactive about solving problems.
3. Don't accept the status quo.
4. Let go of perfectionism and take an attitude of iterative, adaptive change.
5. Look for solutions as you find mistakes.
6. Create an environment in which everyone feels empowered to contribute.
7. Don't accept the obvious issue; instead, ask "why" five times to get to the root cause.
8. Cull information and opinions from multiple people.

9. Use creativity to find low-cost, small improvements.

10. Never stop improving.

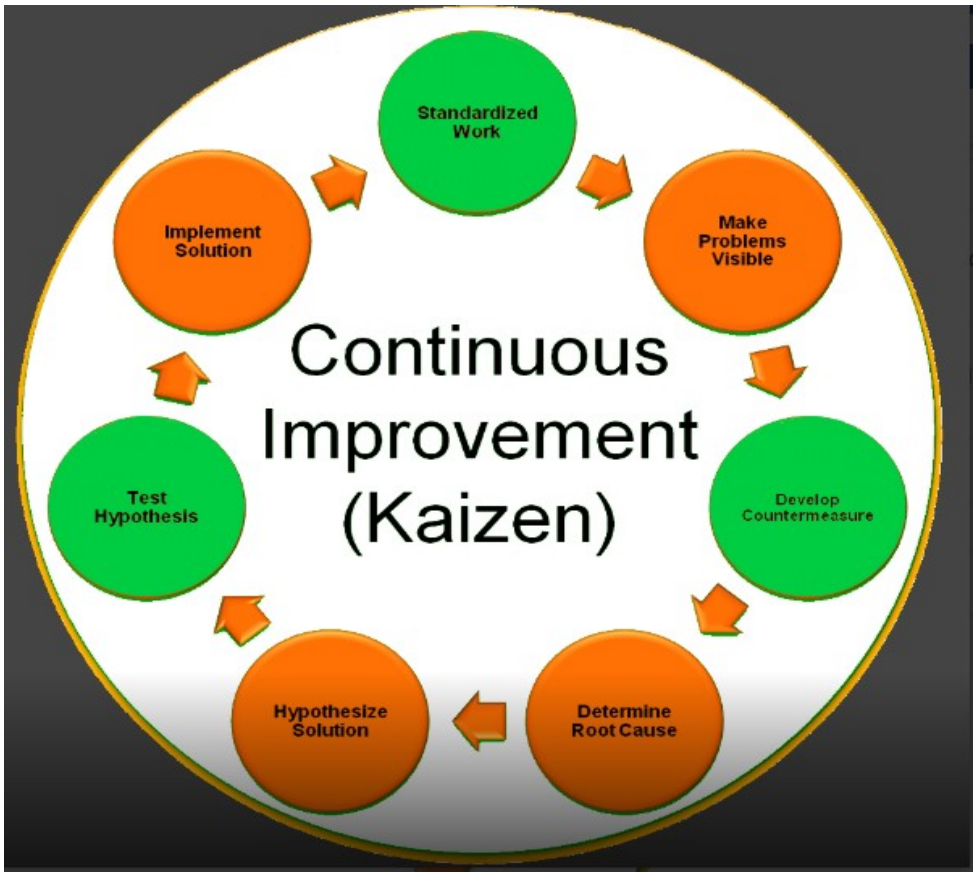


Figure 1.2

PDCA:-

PDCA (plan–do–check–act or plan–do–check–adjust) is an iterative four step management method used in business for the control and continuous improvement of processes and products. It is also known as the Deming circle/cycle/wheel, the Shewhart cycle, the control circle/cycle, or plan–do–study–act (PDSA). Another version of this PDCA cycle is OPDCA. The added "O" stands for *observation* or as some versions say: "Observe the current condition." This emphasis on observation and current condition has currency with the literature on lean manufacturing and the Toyota

Production System. The PDCA cycle, with Ishikawa's changes, can be traced back to S. Mizuno of the Tokyo Institute of Technology in 1959.

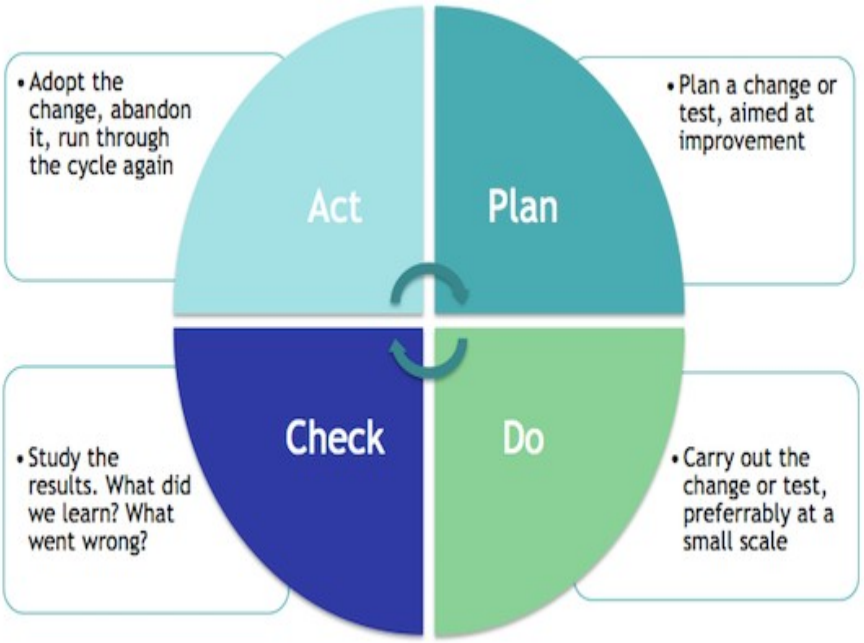


Figure 1.3

The steps of PDCA

PDCA can be applied whenever you consider making a change in your organization. Whenever you decide to install new firewalls, change the content of a training, decide on a new policy or ask people to change the way devices are installed. For each change, the basic four steps are the same: Plan – Do – Check – Act.

- **Plan**: Before changing anything, you need to write down what activity you are trying to improve, how you will determine the effect of the change. There must be some way of measuring effectiveness. You should also know what the current value is before improvement and what the target or expected value is after the change. The metric can be anything as long as it is relevant to your company. It can be number of incidents, time spent on device configuration, or the average

score of a security quiz. Ideally it relates to organization goals, such as customer value, cost savings or time to market.

- **Do**: Once you have goals, metrics and before-value, you make the change that you intend to make. This can be installing the new firewall, modify the training, or install devices in a new way.
- **Check** (or **Study**): Once the change has been made you should be able to measure the effect by looking at changes in the metrics. You will of course expect an improvement, but take care to actually measure what has happened. Many improvement actions will result in no change or even a worsening. For instance if you add more material to a training, it is possible that the training becomes too difficult for people to follow and they actually learn less.
- **Act**: The action will depend on the result of the check step. If the change was successful, you should make the change permanent by instructing everyone, updating documentation or modify process description. You should also update the 'current values' of your metrics: the new better values after the change should become the baseline value for future improvements. If the change was not an improvement.

Why PDCA is important:-

PDCA is based on the idea of continuous improvement. This idea of continuous improvement is actually more important than the exact steps of PDCA. The PDCA/PDSA model was developed to aid improvement in production processes. Different assembly factories such as car factories used to have large differences in productivity. Experts such as Deming were hired by companies in order to understand these differences and make improvement to less efficient factories to make them more efficient.

One of the key insights from these expert visits is that one cannot improve a factory in one step. Each factory has a complex process with many different activities that are interdependent. Each factory has much smaller inefficiency in many different steps, that

all add up to the difference in productivity. A consultant visiting once is not able to pinpoint one big issue and make a single improvement. Consultants therefore concluded that they should not focus on immediate changes. Instead they focus on creating a culture of continuous improvement. They teach line workers, team leaders and other staff the importance of improving their part of the process. Indeed of Deming's key principles is:"Put everybody in the company to work to accomplish the transformation". The entire factory staff is thus responsible for and involved in identifying issues and proposing process changes.

SOLUTION:-

Image 1.1 Front side of Screw Mask

Image 1.2 Rear Side of Screw

Image 1.3:- Mounting of Screw Mask on Steering Wheel

For improving the assembly process and reducing the extra screw fallen in steering wheel we manufacture Aluminum screw mask which have less weight and easy to handle. This screw mask is making with same dimension as dimension of internal part of steering wheel.

While screwing operator takes the screw mask and kept on steering wheel and screwing is done. Even if the screw falls by operator, it will fall on the screw mask only.

WORKING STEPS:-

Without screwing steering wheel

While screwing steering wheel

While screwing steering wheel

After screwing steering wheel

COMPARISON WITH EARLIER STATUS:-

KAIZEN SHEET	
BEFORE	**AFTER**
	

CONCLUSION:-

After the successfully implementation of screw mask, the percentage of screw fallen in steering wheel is reduced by 100% and also the customer complaints are also solved by implementation of it.

Worker easily screwing the steering wheel because holes present in screw mask and the rejection of parts are reduced by implementation of the screw masking.

CASE STUDY 2

CYCLE TIME REDUCED AT MCA ASSEMBLY STATION

(IMPLEMENTATION OF AUTOMATICALLY TILTING PNEUMATIC SCREW DRIVER)

CASE STUDY 2

CYCLE TIME REDUCED AT MCA ASSEMBLY STATION

(IMPLEMENTATION OF AUTOMATICALLY TILTING PNEUMATIC SCREW DRIVER)

AIM:-

Reduce the cycle time at B515 MCA steering wheel assembly line.

PROBLEM STATEMENT:-

Eliminate the excessive movement of worker to tilt the manual steering wheel and reduces the lead time and improves the productivity of process.

OBJECTIVES:-

1. Implement the automatically tilting pneumatic screw driver.
2. To implement low-cost automation
3. To minimize labor fatigue and lead time
4. To reduce overall cycle time and increase productivity

METHODOLOGY:-

Time Study:-

Time study is a structured process of directly observing and measuring human work using a timing device to establish the time required for completion of the work by a qualified worker when working at a defined level of performance.

Objectives of Time Study:

- Target time for each job can be scientifically estimated. With this estimate realistic schedules and manpower requirements can be prepared.
- Sound comparison of alternative methods is possible by comparing their basic times.
- Useful wage incentive schemes can be formulated on the basis of target times.
- It can lead to proper balancing of the work distribution.
- It can help to analyze the activities for performing a job with the view to eliminate or reduce unnecessary or repetitive operations so that human effort can be minimized.
- To standardize the efficient method of performing operations.
- To standardize conditions for efficient performance.
- To determine man and machines ratio for effective and efficient utilization of both.
- To provide information and basis for production planning and scheduling activities.

Different types of times in Industry:-

Cycle Time:-

- The time it takes one workstation in a process to complete its workload for processing a part.

- Cycle Time is the total elapsed time to move a unit of work from the beginning to the end of a physical process.
- Note: Cycle Time is not the same as Lead Time.

Takt Time:-

Takt-time = Net Available Time per Day/ Customer Demand per Day.

- Takt Time sets the 'beat' of the organization in synch with customer demand.
- One of the three elements of Just In Time (along with one-piece flow and downstream pull)
- Takt Time balances the workload of various resources and identifies bottlenecks.
- Takt Time comes from a German word 'takt' meaning rhythm or beat. It is a term often associated with the takt the conductor sets so that the orchestra plays in unison.
- Takt Time is used to match the pace of work to the average pace of customer demand.
- Cycle Time may be less than, more than, or equal to Takt Time.
- Takt Time is expressed as "seconds per piece", indicating that customers are buying a product once every so many seconds. Takt Time is not expressed as "pieces per second".

Man Time:-

- The man-time is compared to Takt time to address two opportunities:
  • Automation: Equipment does not need to be monitored unless something goes wrong.
  • Work Improvement: Examining the individual work element of each operation and determining if they can be reduced, shifted, re-sequenced, combined or eliminated.

Machine Time:-

Machine time is compared to takt time in order to determine if the fixed cycle time of any piece of equipment is greater than the takt time. If this is so, action must be taken to change the available time.

Setup Time:-

- The time it takes to change over to make a different part or do a different process.
- Identify steps needed to complete the changeover.
- There typically Internal and external steps
  Internal: steps where the process must be stopped to complete
  External: steps which can be done without stopping the process.

PROCESS FOLLOWED:-

For reducing the cycle time of the assembly process we implement the Pneumatic Automatic Tilting Screw Driver which increases the efficiency of process and reduces the cycle time.

Image 2.1: - Pneumatic Tilting Screw Driver

BENEFITS:

1. To implement low cost automation.
2. Automatic tilting Pneumatic screw driver reduces the lead time of workers and improves the productivity and cost.
3. To reduce the overall cycle time and increase productivity.
4. It minimizes the fatigue on workers.

COMPARISON OF CYCLE TIME:-

Pneumatic Tilting		
Station No. 1		
Sr. No.	Process	Time in second
1	Wheel Check and Part Load	5
2	Hole Depth Check and Rod Present	3
3	LH Paddle Scan	2
4	RH Paddle Scan	2
5	Tilting Fixture Move LH (Automatically)	1
6	LH Screw Tight	3
7	Tilting Fixture Move RH (Automatically)	2
8	RH Screw Tight	3
9	Tilting Fixture Move Home	1
10	Wire Harness Barcode Scan	3
11	Paddle Wire Harness Snap Fit	5
12	Bezel Barcode Scan	3
13	Bezel press fit on Steering Wheel	4
14	All Screw Present Check	2
15	Wire Routing & Bezel press fit complete	8
16	Barcode Sticking	3

	Total Time	50

Total Production in One Shift:-

Total time in one shift = 435 min

Cycle time per wheel = 50 second

Quantity produced in one shift = ((435*60)/50)) = **522**

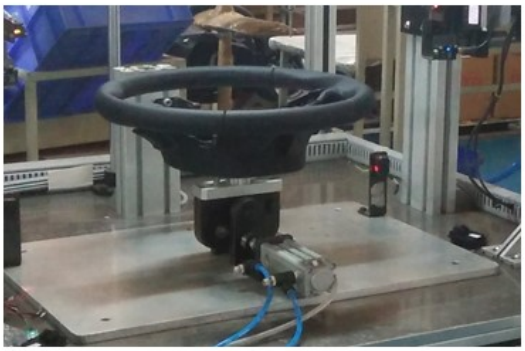
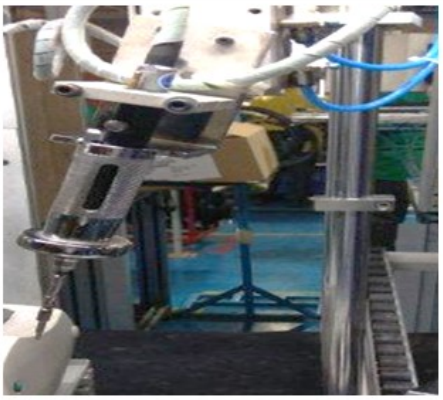
Manual Tilting		
Station No. 1		
Sr. No.	Process	Time in second
1	Wheel Check and Part Load	5
2	Hole Depth Check and Rod Present	3
3	LH Paddle Scan	2
4	RH Paddle Scan	2
5	Tilting Fixture Move LH (Manual)	3
6	LH Screw Tight	3
7	Tilting Fixture Move RH (Manual)	6
8	RH Screw Tight	3
9	Tilting Fixture Move Home	1
10	Wire Harness Barcode Scan	3
11	Paddle Wire Harness Snap Fit	5
12	Bezel Barcode Scan	3
13	Bezel press fit on Steering Wheel	4
14	All Screw Present Check	2
15	Wire Routing & Bezel press fit complete	8
16	Barcode Sticking	3
	Total Time	58

Total Production in One Shift:-

Total time in one shift = 435 min

Cycle time per wheel = 58 second

Quantity produced in one shift = ((435*60)/58)) = **450**

Improvement Theme	
Auto Tilting of Electrical Screw Driver	
Previous Assly. Line	**New Assembly Line**
Steering Wheel with fixture is getting tilted for child part assembly in wheel	Electrical screw driver is getting tilted for child part screwing
	

RESULT:-

- Total time saved due to Pneumatic Tilting Mechanism is 6 second per wheel.
- Hence, total quantity increased per shift is (522-450) = 72 Nos.

CONCLUSION:-

By implementation of Automatically Tilting Pneumatic Screw Driver cycle time of assembly process is reduced. Excessive movement of operator for manual tilting is reduced by implementation of pneumatic tilting.

Productivity and Accuracy of product is also increased by implementation of Pneumatic Tilting Screw Driver.

CASE STUDY 3

KANBAN SYSTEM

(IMPLEMENTATION OF DYNAMIC FIFO SYSTEM IN INDUSTRY)

CASE STUDY 3

KANBAN SYSTEM

(IMPLEMENTATION OF DYNAMIC FIFO SYSTEM IN INDUSTRY)

AIM:-

Develop Dynamic FIFO Board for easy flow of material.

OBJECTIVES:-

- Provides a better tracking of parts when quality issue arises.
- Makes movement of materials in a continuously, easily and orderly manner.

METHODOLOGY:-

KANBAN is a scheduling system and Just-In-Time manufacturing (JIT). Taiichi Ohno, an industrial engineer at Toyota, developed KANBAN to improve manufacturing efficiency. KANBAN is one method to achieve efficiency and JIT.

KANBAN visualizes both the processes (the workflow) and the actual work passing through the processes. The goal of KANBAN is to identify potential bottlenecks in your process and fixed them so work can flow through it cost-effectively at an optimal speed or throughput.

A key reason for the development of KANBAN was the inadequate efficiency of Toyota compared to its American Automobile Rivals. With KANBAN Toyota achieved a flexible and efficient just in time production control system that increased productivity

while reducing cost intensive inventory of raw materials, semi-finished materials, and finished products.

A KANBAN system ideally controls the entire value chain from supplier to the end consumer. In this way, it helps avoid supply disruption and overstocking of supply goods at various stages of manufacturing process. KANBAN requires continuous monitoring of the process. Particular attention needs to be given to avoid bottlenecks that could slow down the production process. The aim is to achieve higher throughput with lower delivery lead times. Over time, KANBAN has become an efficient way in variety of production systems.

KANBAN PRICIPLES & PRACTICES:-

The KANBAN Method follows a set of principles and practices for managing and improving the flow of work. It is an evolutionary, non-disruptive method that promotes gradual improvements to an organization's processes. If you follow these principles and practices, you will successfully be able to use KANBAN for maximizing the benefits to your business process – improve flow, reduce cycle time, increase value to the customer, with greater predictability – all of which are crucial to any business today.

The four foundational principles and six Core Practices of the KANBAN Methodology are provided below:

- **Foundational Principles**

Start with what you are doing now: The KANBAN Method (hereafter referred to as just KANBAN) strongly emphasizes not making any change to your existing setup/ process right away. KANBAN must be applied directly to current workflow. Any changes can occur gradually over a period of time at a pace the team is comfortable with.

Agree to pursue incremental, evolutionary change: KANBAN encourages you to make small incremental changes rather than making radical changes that might lead to resistance within the team and organization.

Initially, respect current roles, responsibilities and job-titles: Unlike other methods, KANBAN does not impose any organizational changes by itself. So, it is not necessary to make changes to your existing roles and functions which may be performing well. The team will collaboratively identify and implement any changes needed. These three principles help the organizations overcome the typical emotional resistance and the fear of change that usually accompany any change initiatives in an organization.

Encourage acts of leadership at all levels: KANBAN encourages continuous improvement at all the levels of the organization and it says that leadership acts don't have to originate from senior managers only. People at all levels can provide ideas and show leadership to implement changes to continually improve the way they deliver their products and services.

- **6 Core Practices of the KANBAN Method**

Visualize the flow of work: This is the fundamental first step to adopting and implementing the KANBAN Method. You need to visualize – either on a physical board or an electronic KANBAN Board, the process steps that you currently use to deliver your work or your services. Depending on the complexity of your process and your work-mix (the different types of work items that you work on and deliver), your KANBAN board can be very simple to very elaborate. Once you visualize your process, then you can visualize the current work that you and your team are doing.

This can be in the form of stickies or cards with different colors to signify either different classes of service or could be simply the different type of work items. (In Swift KANBAN, the colors signify the different work item types!)If you think it may be useful, your KANBAN board can have different Swim Lanes, one for each class of service or for each work item type. However, initially, to keep things simple, you could also just have a single swim lane to manage all your work – and do any board redesign later.

Limit WIP (Work in Progress): Limiting work-in-progress (WIP) is fundamental to implementing KANBAN – a 'Pull-system'. By limiting WIP, you encourage your team to complete work at hand first before taking up new work. Thus, work currently in progress must be completed and marked done. This creates capacity in the system, so new work can be pulled in by the team. Initially, it may not be easy to decide what your WIP limits should be. In fact, you may start with no WIP limits. The great Don Reinertsen suggests (he did so at one of the Lean KANBAN conferences) that you can start with no WIP limits and simply observe the initial work in progress as your team starts to use KANBAN. Once you have sufficient data, define WIP limits for each stage of the workflow (each column of your KANBAN board) as being equal to half the average WIP.

Typically, many teams start with a WIP Limit of 1 to 1.5 times the number of people working in a specific stage. Limiting WIP and putting the WIP limits on each column of the board not only helps the team members first finish what they are doing before taking up new stuff – but also communicates to the customer and other stakeholders that there is limited capacity to do work for any team – and they need to plan carefully what work they ask the team to do.

Manage Flow: Managing and improving flow is the crux of your KANBAN system after you have implemented the first 2 practices. A KANBAN system helps you manage flow by highlighting the various stages of the workflow and the status of work in each stage. Depending on how well the workflow is defined and WIP Limits are set, you will observe either a smooth flow within WIP limits or work piling up as something gets held up and starts to hold up capacity. All of this affects how quickly work traverses from start to the end of the workflow (some people call it value stream). KANBAN helps your team analyze the system and make adjustments to improve flow so as to reduce the time it takes to complete each piece of work.

A key aspect of this process of observing your work and resolving/ eliminating bottlenecks is to look at the intermediate wait stages (the intermediate Done stages) and see how long work items stay in these “handoff stages”. As you will learn, reducing the time spent in these wait stages is key to reducing Cycle Time. As you improve flow, your team’s delivery of work becomes smoother and more predictable. As it becomes more predictable, it becomes easier for you to make reliable commitments to your customer about when you will get done with any work you are doing for them. Improving your ability to forecast completion times reliably is a big part of implementing a KANBAN system.

Make Process Policies Explicit: As part of visualizing your process, it makes sense to also define and visualize explicitly, your policies (process rules or guidelines) for how you do the work you do. By formulating explicit process guidelines, you create a common basis for all participants to understand how to do any type of work in the system. The policies can be at the board level, at a swim lane level and for each column. They can be a checklist of steps to be done for each work item-type, entry-exit criteria for each column, or anything at all that helps team members manage the flow of work on the board well. Examples of explicit policies include the definition of when a task is completed, the description of individual lanes or columns, who pulls when, etc. The policies must be defined explicitly and visualized usually on the top of the board and on each lane and column.

Implement Feedback Loops: Feedback loops are an integral part of any good system. The KANBAN Method encourages and helps you implement feedback loops of various kinds – review stages in your KANBAN board workflow, metrics and reports and a range of visual cues that provide you continuous feedback on work progress – or the lack of it – in your system. While the mantra of “Fail fast! Fail often!” may not be intuitively understood by many teams, the idea of getting feedback early, especially if you are on the

wrong track with your work, is crucial to ultimately delivering the right work, the right product or service to the customer in the shortest possible time. Feedback loops are critical for ensuring that.

Improve Collaboratively, Evolve Experimentally (using the scientific method): The KANBAN Method is an evolutionary improvement process. It helps you adopt small changes and improve gradually at a pace and size that your team can handle easily. It encourages the use of the scientific method – you form a hypothesis, you test it and you make changes depending on the outcome of your test. As a team implementing Lean/ Agile principles, your key task is to evaluate your process constantly and improve continuously as needed and as possible.

The impact of each change that you make can be observed and measured using the various signals your KANBAN system provides you. Using these signals, you can evaluate whether a change is helping you improve or not, and decide whether to keep it or try something else. KANBAN systems help you collect a lot of your system's performance data – either manually, if you use a physical board, or automatically, if you use a tool such as Swift KANBAN. Using this data, and the metrics it helps you generate, you can easily evaluate whether your performance is improving or dropping – and tweak your system as needed.

PROCESS FOLLOWED:-

Like KANBAN board we make FIFO (First In First Out) Board for movement of materials in a continuous, Orderly manner and also for better tracking of parts when quality issues arises.

Definition of FIFO:-

The process of moving material or product in industry so that the oldest is used first."FIFO" stands for first-in, first-out, meaning that the oldest inventory items are recorded as sold first but do not necessarily mean that the exact oldest physical object has been tracked and sold. In other words, the cost associated with the inventory that was purchased first is the cost expensed first. With FIFO, the cost of inventory reported on the balance sheet represents the cost of the inventory most recently purchases.

FIFO IN DISPATCH

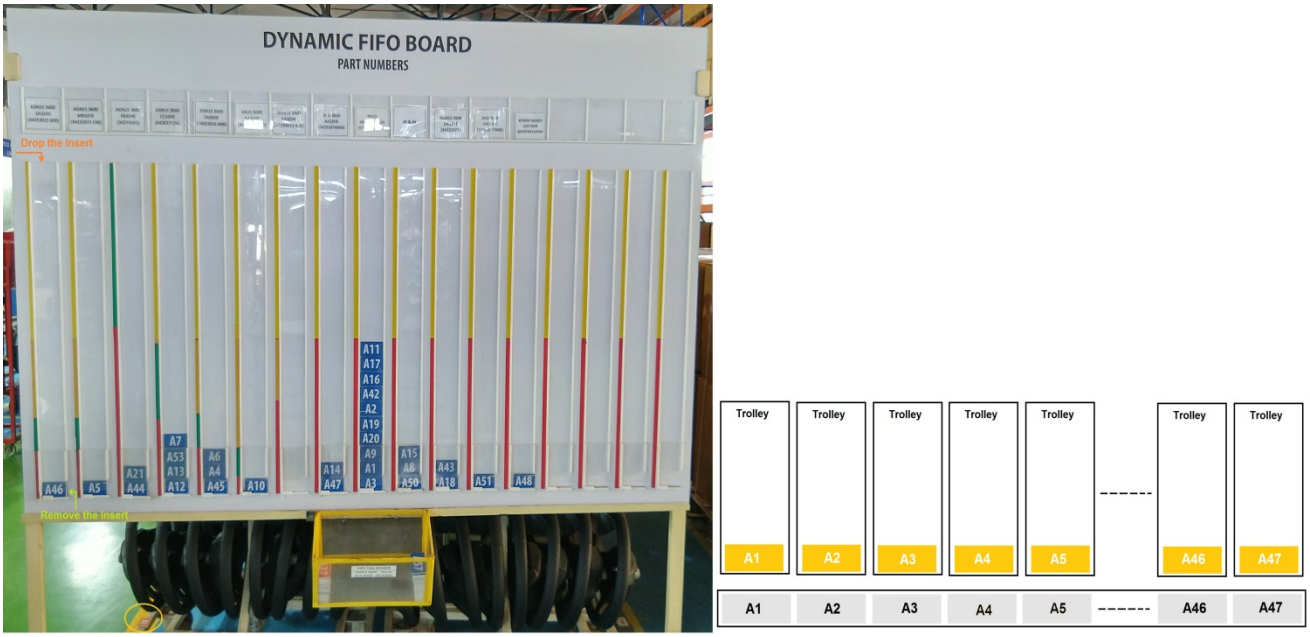
There is different labels stick on different steering wheel trolley. When finished goods trolley is transfer to finished good area the dispatch person insert the label in FIFO Board according to date of manufacturing.

Step 1:-

Dispatch person has to take finished good trolley with proper label on it and then transfer to finished good area.

Step 2:-

While dispatch of material, dispatch person ensures that the trolley has to take according to oldest date of manufacturing.



FIFO Board Floor Locations

Image 3.1

FIFO FOR RAW MATERIAL STORES

Inputs: - Inputs are the goods receipt number and receipt date of product.

Responsible Persons: - Store incharge and his assistant.

Activity: - Identification, Receipt tag with inward entry number and paste color paper.

Output: - Maintain FIFO

Purpose:-

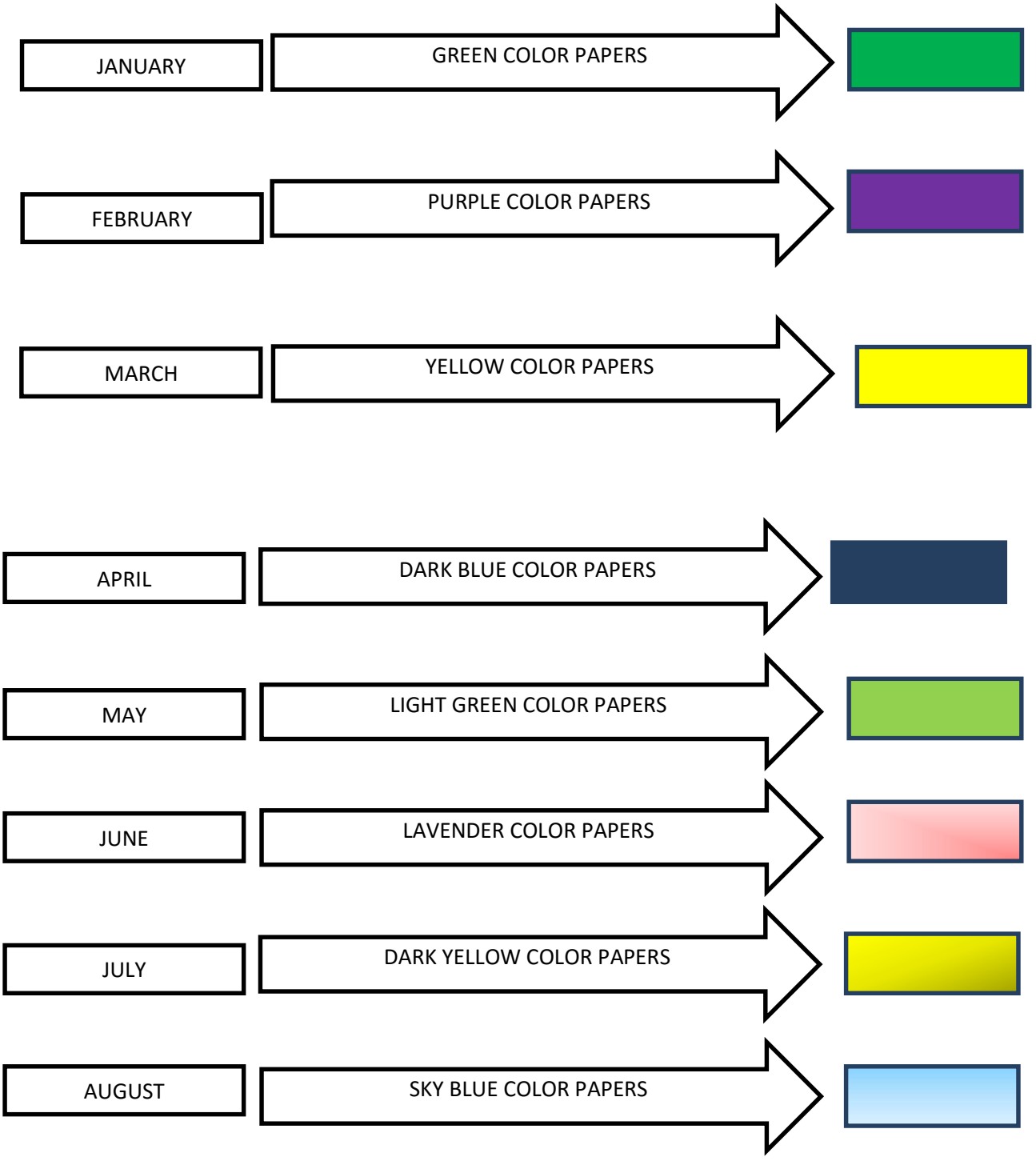
To ensure material issued on first in first out basis and traceability in stores.

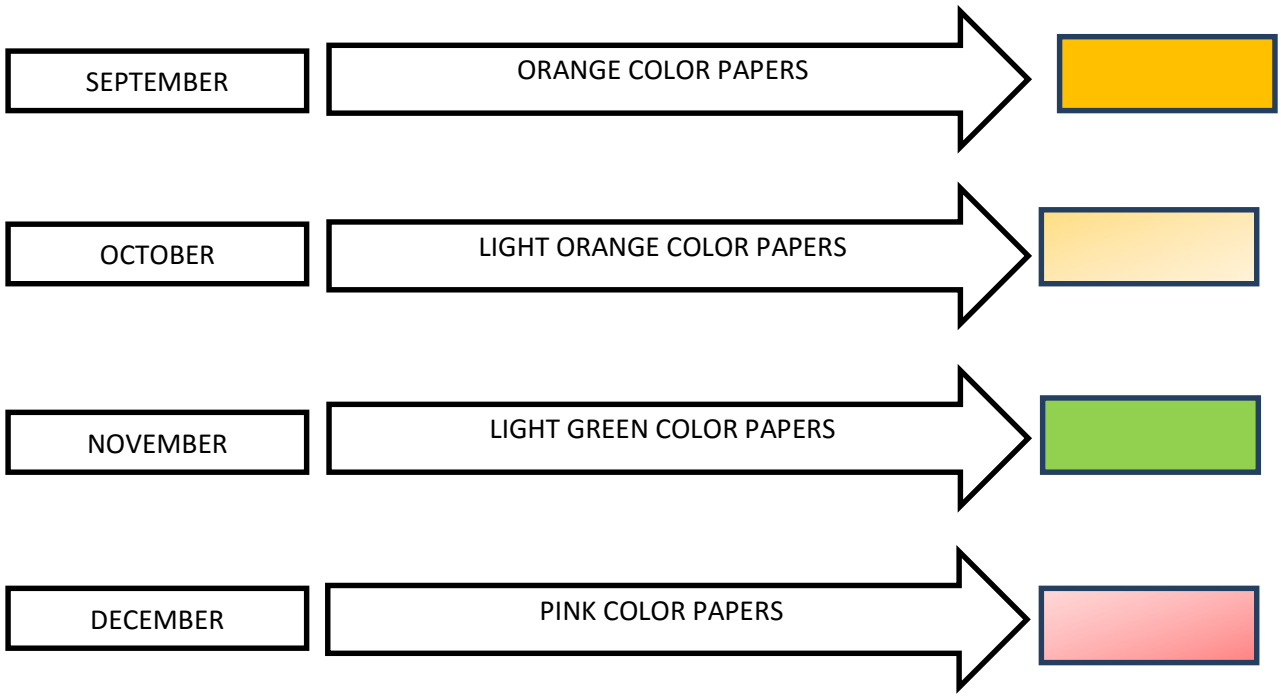
Responsibility:-

Receiving Stores Officer will ensure FIFO label pasting. Receiving material handler & material issuing operators are responsible to follow FIFO.

Receiving material handlers will shift the material to the defined location after incoming inspection.

For pasting of color paper identification are as per below: -





Procedure:-

a) Stores Receiving Officer will coordinate with stores material handlers for identifying all Packs & Sub Packs with Identification label with define colors. The GRN Number & material receipt date on identification label is the key for component FIFO.
b) Every Shipment or Invoice will have Unique GRN number.
c) Unique ERP generated GRN numbers are pasted on packs receipt has been considered as GRN number for FIFO purposes.
d) Receiving material handler will identify the material with Identification label and date of receipt.
e) Receiving material handler will handover material to incoming inspection person for inspection the material.

f) After inspection OK material will be shift to defined location by Receiving Material Handler.
g) At the time of material issue to production, material issuing person must be verify identification color label.
h) Material issuing person must be verify date of receipt which is mentioned on identification color label.
i) Material issuing person has to makes sure that which material came first. For example there are three lots of a particular material dated 10 March 2019, 18 April 2019 and 20 April 2019.
j) Material Issuing person should be issue material of 10 March 2019 as per mentioned on above points for the FIFO.
k) At the time of issue physical material, same item need to be issue in ERP.

CONCLUSION:-

The developed “Dynamic FIFO System” reduced the time to search the types of steering wheels as the location for trolley is defined by the FIFO board.

Saved lot of space as for “Static FIFO System” we would require huge space due to different part numbers. Due to “Dynamic FIFO System” the available floor space is fully and properly utilized.