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PRODUCTIVITY IMPROVEMENT BY REDUCING NON-VALUE ADDED ACTIVITIES AND SCRAP IN WORLD CLASS MANUFACTURING

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ABSTRACT :

Global competition is forcing rapid change in all areas of Industrial business. The purpose of competing is to win.In manufacturing industry, winning means satisfying your customer completely, better than the best in the world, and making money for your company at the same time.World class means changing the way we view and operate all business functions.WCM is about using manufacturing successfully as a competitive weapon in global competition. In WCM you satisfy your customer by providing high quality service and products at the right price, delivered on time. Customer focus is not only a sign but is fundamental to world class manufacturing.

Key words: World class manufacturing, 5T,ten pillars.

1. INTRODUCTION:

The notion of quality accompanies man in everyday life. When thinking about quality, the consumer has in mind a number of product quality attributes.The comfort of use, functionality, durability, aesthetics, cost-effectiveness, safety and more and more frequently product.Depending on personal features and preferences, consumers seek for various products and services which will meet their individual requirements. For this reason, contemporary enterprises wishing to beat strong competitors on the global market must offer services and goods which fulfil their customers' quality requirements.Such an approach to enterprise management makes quality a priority for a modern, developing enterprise with long-term strategies.Both the financial and development aspects force companies of the 21st century to adopt a „quality" approach at each level of activity, starting with the managerial level and finishing with the production one.In order to ensure a high standard of products and services, companies can make use of appropriate methods worked out by authorities in this field.Apart from TQM, KAIZEN, one of such management instruments is the WCM (World Class Manufacturing) system, which is an enterprise renewal program based on the continuous improvement standard both, in logistics and in production.This system consists of five pillars and employs a number of methods and tools which are necessary in the complicated process of product quality improvement and in the even more difficult activity related to quality maintenance on the already achieved level.In most cases the applied methods are well known tools for improving quality in an enterprise, such as: FMEA, QFD, 5S, Brain Storming.The article presents selected tools of the Quality Control pillar, which are not very popular in organizations and allow the existing irregularities to be quickly eliminated. Appropriate selection of people capable of cooperating in a team is crucial for the set goals' fulfilment.WCM is implemented by means of the cascade process. It starts with implementing a model in a select group and gradually makes more and more people involved.Throughout the process of changes the employee must realize that his/her attitude is being observed.It is

not quantitative aspects of work that are important, but his/her more organized and orderly activity. Ambitious goals that WCM sets for an enterprise require a thorough change not only to the very functioning of the plant, but also to the way of work and the manner of production processes management. Figure 2 presents WCM goals in a graphic form. Another important issue in the process of goals fulfilment is related to employees' awareness of the changes which must take place, so that the WCM system can fulfil its function in an organization

These methods include: Poke -Yoke, 5G, 5Why, 5W+H1, OPL.

2. TEN PILLARS:

2.1 Safety:Continuous improvement of safety.To reduce drastically the number of accidents.To develop a culture of prevention.To improve the ergonomics of the workplace.To develop specific professional skills.

2.2 Cost Deployment:Analysis of the losses and costs (losses within the costs).To identify scientifically and systematically the main items of loss in the system production-logistics business.To quantify the potential economic benefits and expected.To address the resources and commitment to managerial tasks with greatest potential.

2.3 Focused Improvement: Priorities of actions to management the loss identified by the cost deployment.To reduce drastically the most important losses present in the system manufacturing plant, eliminating inefficiencies.To eliminate non-value-added activities, in order to increase the competitiveness of the cost of the product. To develop specific professional skills of problem solving.

2.4 Autonomous Activities: Continuous improvement of plant and workplace.It is constituted by two pillars**.**AM Autonomous Maintenance. It is used to improve the overall efficiency of the production system through maintenance policies through the conductors (equipment specialists).Workplace Organization. It is develops to determine an improvement in the workplace, because often the materials and equipment are degrade; in particular because in the process there are many losses (MUDA) to remove.

2.5 Professional Maintenance: Continuous improvement of downtime and failures.It assumes that as a result of employee engagement, it is possible to significantly reduce the time lost for downtime associated with untimely deliveries of materials, conversion of machines, maintenance and breakdowns.As a result of the application of this concept, improvements are introduced in the organization of the production hall, sockets, or machine settings.Often, simple machines are also used, which are easily re-set, repaired, maintained and, if necessary, sold, even though comprehensive and very technologically advanced aggregates are available.To increase the efficiency of the machines using failure analysis techniques.To facilitate the cooperation between conductors (equipment specialists) and maintainers (maintenance people) to reach zero breakdowns.

2.6 Quality Control: Continuous improvement of customers'needs.To ensure quality products.To reduce non-compliance.To increase the skills of the employees.

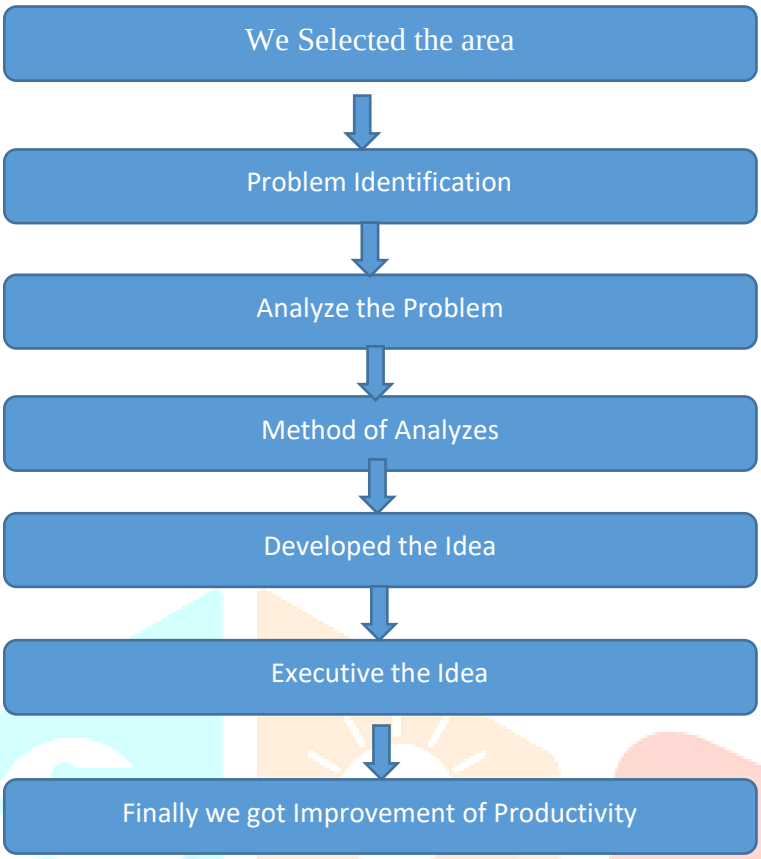
2.7 Logistics & Customer Service: Optimization of stocks**.**To reduce significantly the levels of stocks.To minimize the material handling, even with direct deliveries from suppliers to the assembly line.

2.8 Early Product Management: Optimization of installation time and costs and optimization of features of new products.To put in place new plants as scheduled.To ensure a rapid start-up and stable.To reduce the Life Cycle Cost (LCC).To design systems easily maintained and inspected

2.9 People Development: Continuous improvement of the skills of employees and workersTo ensure, through a structured system of training, correct skills and abilities for each workstation.To develop the roles of maintenance workers, technologists, specialists such as major staff training.

2.10 Environment ENE Energy: Continuous improvement environmental management and reduce energy waste.To comply with the requirements and standards of environmental management.To develop an energy culture and to reduce the energy costs and losses.

3. METHODLOGY



4. SELECTED AREA:

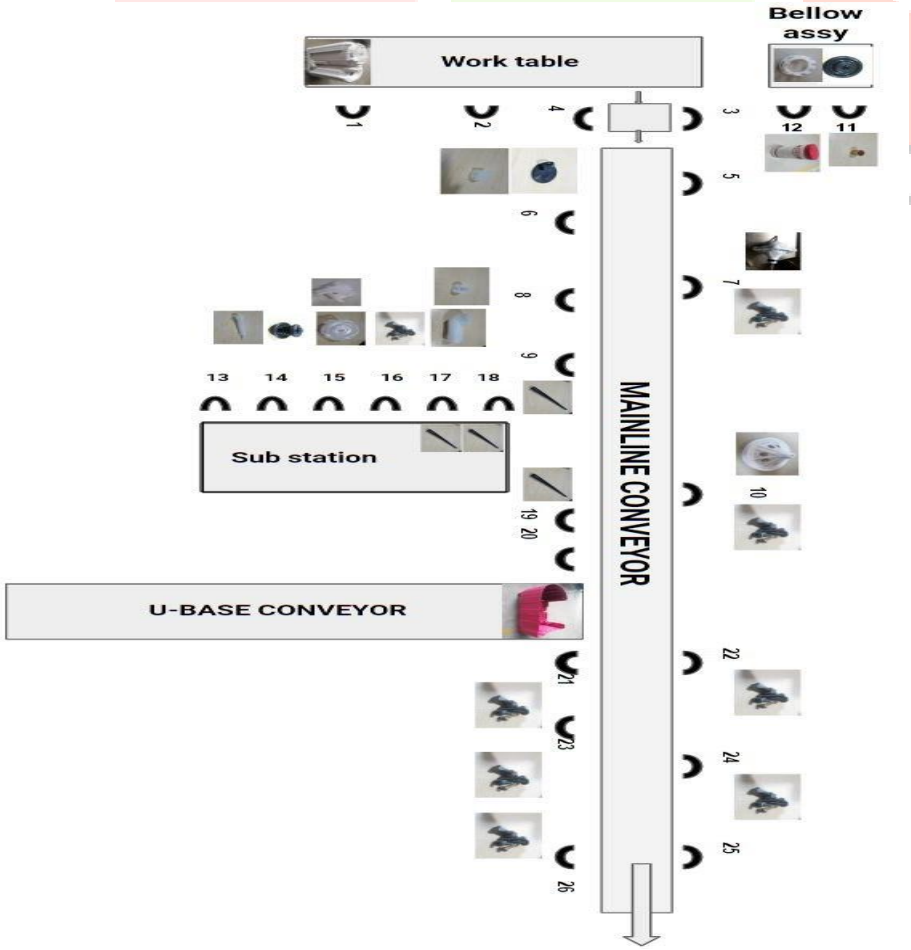


Figure 1(Selected area)

5. PROBLEM IDENTIFICATION:

- No clear floor marking
- Materials are not available in Nearest area
- Lot of Inventory
- Difficult to Material Handling

Figure 2 (Problem Identification)

6. METHODS OF ANALYZING THE PROPLEMS:

VSM (Value Stream Map)

FLOW ANALYSIS

5G

5W+1H

What

Where

When

Which

Who

How

Why Why analysis

7. OUR WORK

We have Developed a standardization racks for material feeding.

Then we build a new picking area for material storage in near to the model area.

Those the process are help to reduce the Non-Value Added Activities.

After developed the floor marks for the SA line.

They can be help to guide for the moving vehicles and Identified by the correct area.

Reduce the lot of Inventory in Model area.

Figure 3 (Our Work**)**

8. Before Improvement

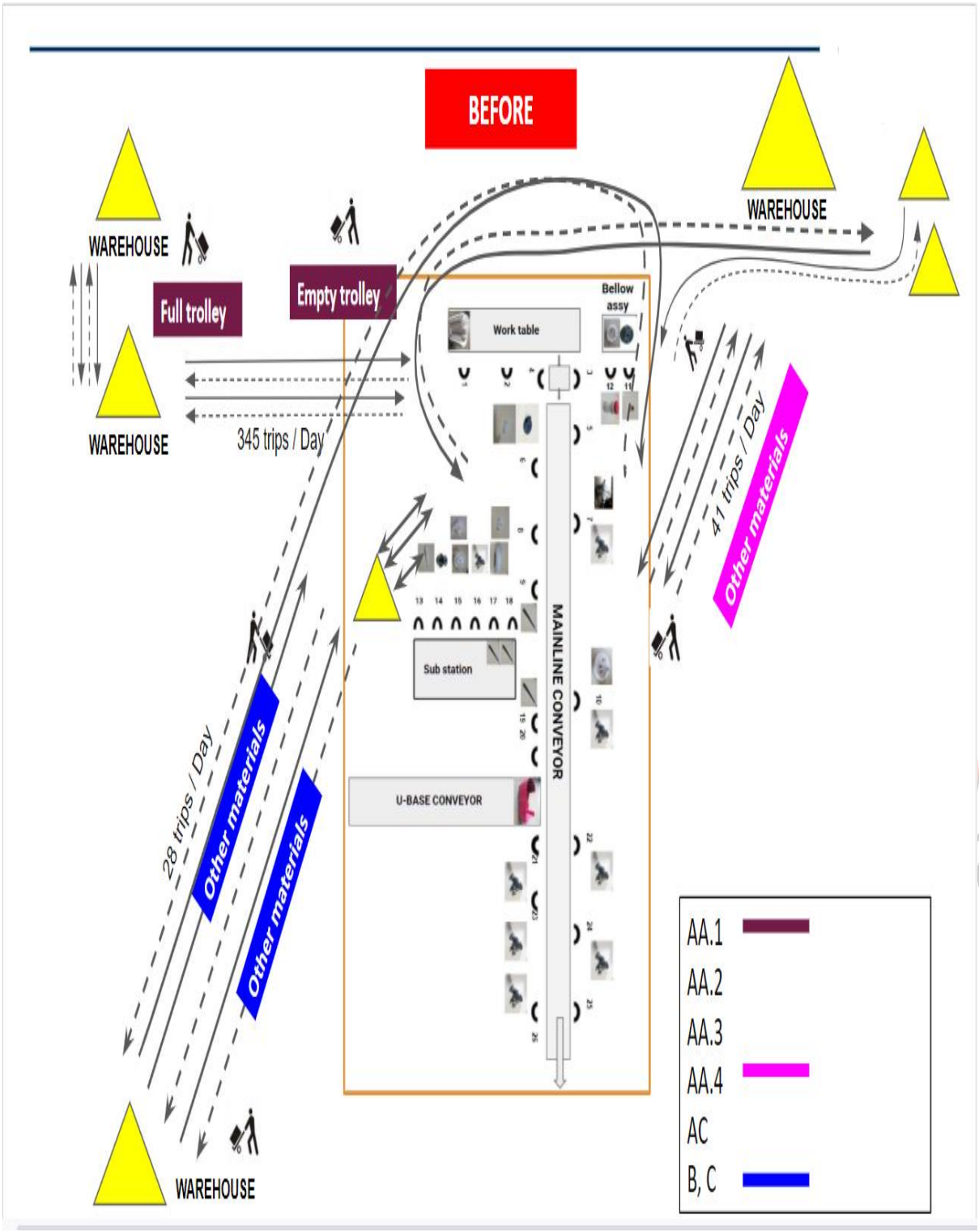


Figure 4 (Before Improvements**)**

9. After Improvement

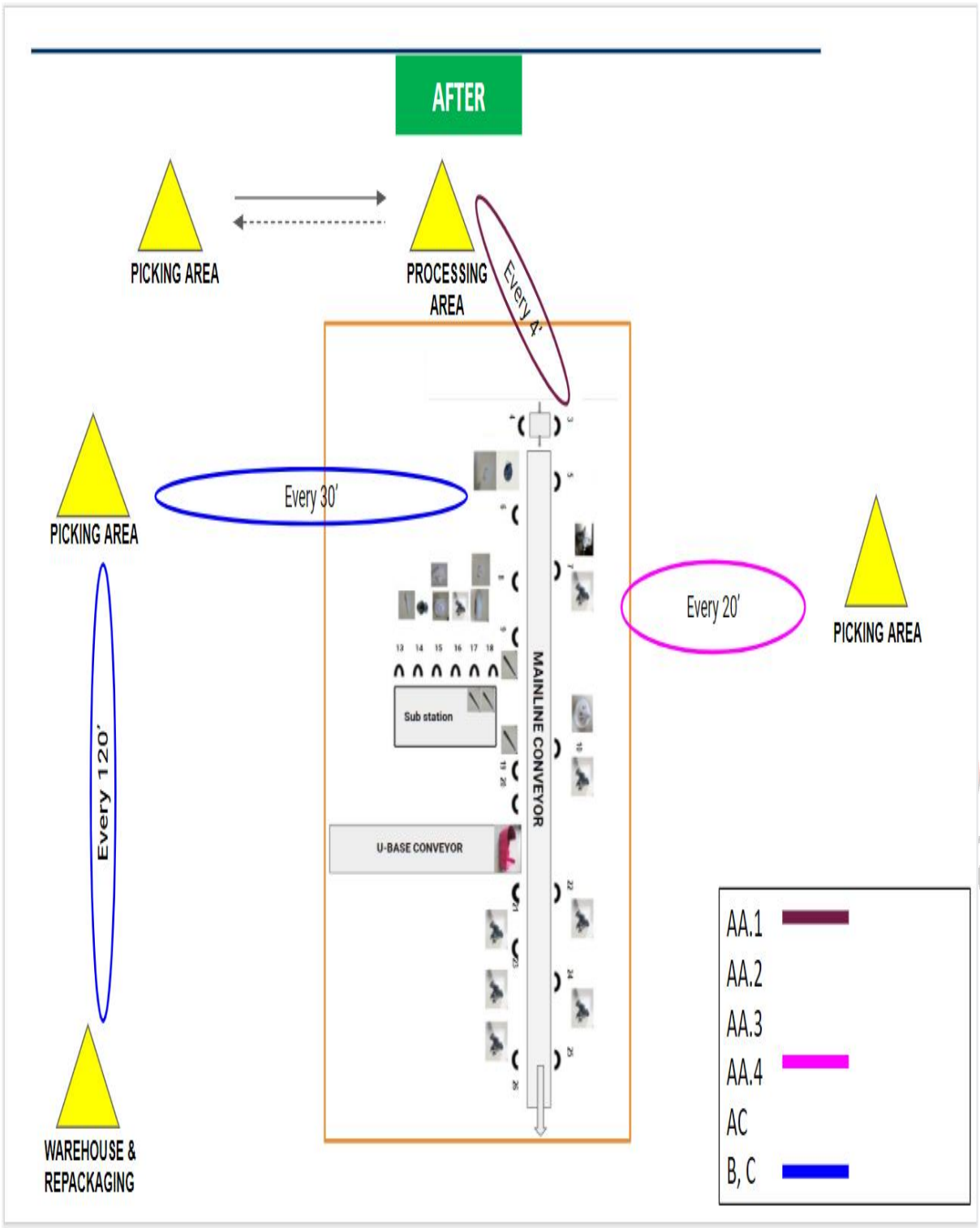


Figure 5 (After Improvements**)**

10. CONCLUSION:

During the Industrial project in "WHIRLPOOL CORPORATION" at Pondicherry, The Application of WCM Technique by enhancing the 5s tool to increase the productivity. Also the source of contamination were eliminated by accordingly 3M analysis. WCM includes the identification and elimination of errors by the application of 5W+1H concepts.

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