

# Applying the Kaizen Method and the 5S Technique in the Activity of Post-Sale Services in the Knowledge-Based Organization

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**Abstract** — The Kaizen management originated in the best Japanese management practices and is dedicated to the improvement of productivity, efficiency, quality and, in general, of business excellence. The KAIZEN methods are internationally acknowledged as methods of continuous improvement, through small steps, of the economical results of companies. The small improvements applied to key processes will generate the major multiplication of the company's profit, while constituting a secure way to obtain the clients' loyalty/fidelity. The KAIZEN management represents a solid, strategic instrument, with a view to reach and surpass the company's objectives. The "5S" technique represents a fundamental technique which allows the enhancement of efficiency and productivity, while ensuring a pleasant organizational climate. The scientific paper presents in a concrete way a study regarding the application of these concepts in a real organization which builds its business success on the phenomenon called KNOWLEDGE.

**Index Terms** — Quality, Quality Management, Kaizen, 5S.

## I. INTRODUCTION

"Experience is the toughest teacher because first you take the test and second you are taught the lesson." – Vernon Sanders Law.

All over the world the Kaizen techniques have been particularly distinguished as the best methods of performance improvement within companies since the implementing costs were minimal. It is nowadays more than ever that the relationship between manager and employee is crucial and the Kaizen techniques have a major contribution to the reinforcement of this relationship since the achievements of a company are the result of the mixed efforts of each employee.

These methods bring together all the employees of the company ensuring the improvement of the communication process and the reinforcement of the feeling of membership.

Presently, considering the global phenomenon, we can notice that, in the field of car industry, the products and services are comparable to one another, the life cycle of products is more and more reduced whereas the service intervals are more and more extended. Under these circumstances, the increase of service quality provided to clients has become a desideratum that the organization cannot get and improve the performance level without.

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Fig. 1. KAIZEN Systems

The Kaizen management originates in the best Japanese management practices and is dedicated to the improvement of productivity, efficiency, quality and, in general, of business excellence. The Kaizen methods are internationally acknowledged as methods of continuous improvement, through small steps, of the economical results of companies. The small improvements applied to key processes will generate the major multiplication of the company's profit while constituting a secure way to obtain the clients' loyalty/fidelity. [2]

The companies that want to have performance must keep their leading position on the market by increasing the quality level of the services provided, reducing costs and last, but not least, motivating the whole staff in order to implement the concept of performance-oriented organization.

Within the present economical context, cost reduction is one of the major objectives.

Kaizen is a solid strategic instrument which is used to achieve and overcome the company's objectives. The 5S techniques are fundamental techniques which allow the increase of efficiency and productivity while ensuring a pleasant organizational climate.

The Kaizen methods and techniques [Fig. 1] are valuable instruments that can be used to increase productivity, to obtain the competitive advantage and to rise the overall business performance on a tough competitive market like the one in the European Union. [2], [6]

We must permanently think of the fact that the way in which we fulfill even the daily tasks today is not the most efficient way to perform. Therefore, we must continuously look for new ways of achieving our objectives in the easiest manner and, of course, at the lowest costs.

We will further present some definitions which will help us

get familiar with the Kaizen concepts:

- KAIZEN = CONTINUOUS IMPROVEMENT
- KAI = CHANGE
- ZEN = GOOD (to better)
- GEMBA – the real place where each employee works, the place where we add value indeed
- GEMBUTSU – the unconformable physical / touchable element (out of order equipment, scrap)
- MUDA – loss, scrap, scantling, any activity or process that is not worthy
- PDCA – the cycle Plan, Do, Check, Act in order to standardize and prevent the reoccurrence of nonconformities
- SDCA – the cycle Standardize, Do, Check, Act

The 5 „Why?“

The real cause that can generate or has already generated the occurrence of nonconformity must be identified by asking „Why?“ five times.

#### THE FIVE GOLDEN RULES OF THE KAIZEN MANAGEMENT

- When a problem first occurs, go to GEMBA.
- Check Gembutsu – unconformable product
- Take temporary measure on the spot.
- Find the main cause (use the five WHY? questions).
- Standardize to prevent reoccurrence.

#### THE FIVE STEPS OF GOOD MAINTENANCE– 5S

In Japanese, 5S is the short form of five words which present the concept of good maintenance.

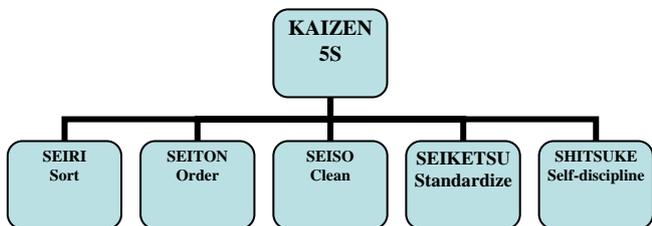


Fig. 2. KAIZEN – 5S

The definitions and significance of the five words [Fig. 2] are given below:

- SEIRI – Sorting – making the difference between necessary and useless things in GEMBA, giving up the useless ones.
- SEITON – Ordering/Arrangement – the ordering of all the items after SEIRI.
- SEISO – Cleaning and disturbance detection – the working areas/equipments will be clean.
- SEIKETSU - Standardizing– the extension of the cleaning concept to each individual alongside with the continuous practice of the three steps 3S.
- SHITSUKE – Disciplining – getting self-discipline and getting used to be each involved in the 5S actions through standard application.

#### COMMON WAYS OF RESISTANCE TO 5S

It has been generally noticed that, at the moment the organization decides to implement the Kaizen concepts, the personnel shows resistance to change and the most frequent

motivations will be the following:

- What is so special about sorting and arranging?
- Why should we clean since it gets dirty again?
- Sorting and arranging will not increase the results.
- We have already implemented order and cleaning.
- We applied 5S years ago.
- We are too busy to deal with 5S actions.

#### II. CASE STUDY. PROBLEMS

Within the present economical context, considering the importance of revenues, the management focus has been transferred from the sale departments to the After Sales department and cost reduction specific to this activity has become one of the tactic objectives of the organization.

The implementation of the concept of continuous improvement [4] involves:

- Continuous improvement of products and processes;
- Periodical evaluation of the performance standards of excellence criteria previously set in order to identify the areas which need improvements;
- Continuous improvement of productivity, effectiveness and efficiency of all processes in the organization;
- Promotion of prevention-based activities;
- Education and instruction of each employee in order to be able to use the techniques of continuous improvement, such as:
  - The Deming cycle – P.D.C.A. – planning/execution/check/action;
  - The techniques and instruments of quality management;
  - Process reengineering;
  - Process innovation techniques;
- Setting the objectives concerning improvement and the necessary measures to achieve them;
- Recognition of the results obtained by the organization staff concerning the continuous improvement particularly speaking of processes.

Regarding the aspects above, we have done a study case within the After Sales department [Fig. 3].

The areas where we took 5S specific actions are:

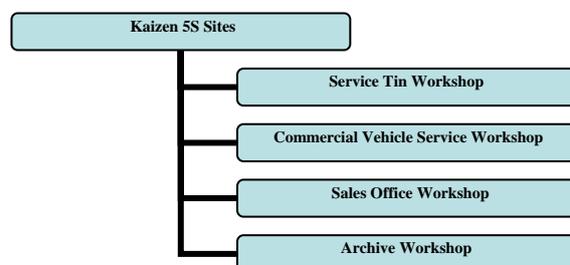


Fig. 3. 5S Workshop Presentation

KAIZEN – 5S – Tin Shop

Objectives:

- Increase the storing places with 30%;
- Create and preserve standards and service procedures specific to the tin shop;
- Reduce unproductive times with 10%;
- Redefine access, working and storing spaces;
- Create a nonconformity report procedure which occurred while specific activities were taking place;
- Create and preserve membership;
- Readjust the location.

S1-SEIRI-Sort

- Red labels have been applied to all marks which were not necessary during the activity within the tin service shop;
- All useless things have been sorted and eliminated [Fig. 4];
- Approximately 700 kg of scantlings have been thrown away;
- The causes that led to the scantling accumulation have been analyzed;
- Rules specific to this activity have been stated and are to be implemented.



Fig. 4. SEIRI – Storage System

S2-SEITON-Order

- All objects which were placed inappropriately have been taken inventory of;
- The locations of all objects necessary in the workshop have been defined and marked [Fig. 5];
- Colors have been used to mark the different areas;
- The access, storing and working areas have been established and marked;
- The arranging way has been set according to destination and degree of usage.



Fig. 5. SEITON – Work area

S3-SEISO-Cleaning and disturbance detection

- All floors in the areas have been washed;
- All walls have been cleaned;
- The electrical wiring on the control panel of the elevator has been rewired;
- The supply wiring of the plug used for the blowpipes has been rewired;
- All storing shelves have been cleaned;
- All machines and tools have been washed and cleaned;
- Existing disturbances / nonconformities [Fig. 6] have been detected (electric panel with no protection screen, leaking compressed air system, car body pulling device with large articulation clearance, lack of an efficient ventilation system ...).



Fig. 6. SEISO – Restore working conditions

**KAIZEN – 5S – Sales Office Workshop**

**Objectives:**

- Increase the storing area with 10%;
- Reduce the document search time with 20% (1 minute maximum to identify any document);
- Redefine the access, work and store areas;
- Create and preserve membership;
- Rearranging the interior of the location;

**S1-SEIRI-Sort**

- The working area has been marked;
- Red labels have been applied to all non conform elements that were considered unnecessary to the activity within the sales department;
- All useless things have been sorted and eliminated [Fig. 7];
- Approximately 50 kg of scantlings have been thrown away;
- The causes that led to the scantling accumulation have been analyzed.



**Fig. 7. SEISO – Redefined image location**

**S2-SEITON-Order**

- All objects placed inappropriately have been taken inventory of;
- The location of all objects necessary in the activity within the sales area have been defined;
- Visual standards of arrangement and order have been set [Fig. 8];
- The storing areas and the way of arranging the marks that are necessary in the area have been set;
- The way of arranging has been set according to destination and usage degree.

**S3-SEISO-Cleaning and disturbance detection**

- All offices in the area have been cleaned as well as the computer monitors and the key boards [Fig 9];
- The supply wiring has been redone;
- The supply / connection wiring for the communication servers has been redone, the location and store place has been changed;
- All boards have been cleaned as well as all the windows;

- The existing disturbances and nonconformities have been detected.



**Fig. 8. SEITON - Organizing the work**



**Fig. 9. SEISO - Redefined area of work**

**III. DATA ANALYSIS AND RESULT INTERPRETATION**

It is extremely important to define the structure of the 5S teams in order to ensure the good development of actions. Secondly, within the team structure, there should be members from each department of the organization according to possibilities. Since the role of each team member is essential, here are some aspects selected after the practical applications that we should reflect upon: [3], [6]

- Teams tend to go straight to action without paying enough attention to the recording of the present stage in the area where they perform; At the end of the working day, there is a tendency not to end up the data recording; After noticing the results of their own actions, the team members become enthusiastic and do

not pay enough attention to the recording and monitoring of the performance level that they have achieved; At the end of the 5S actions, due to the lack of synchronization of the members, the teams do not always manage to finish the specific documents correctly and in time, as well as the presentation of the results of group work.

At the end of the three days of action, the members of the Kaizen – 5S - Tin shop team have revealed the following aspects:

- At the end of the first working day, all the team members involuntarily sat at the same table, although at the beginning of the day they used to stay in different groups according to the department they belonged to; We noticed that it is easy to perform according to the 5S spirit, but it is difficult to keep and improve what was done during the initial action; Kaizen means an easy and efficient approaching way with reduced costs of the problems that we are by principle „afraid of”;
- Together we are stronger;
- In three days we can create an ”integer” made of distinct personalities; It is essential to have an objective to achieve and to fight for achieving it;
- Performance is directly linked to individual achievements; It is enough to have a helping hand to rise; When a problem occurs, it is essential to identify correctly its cause and to eliminate it as soon as possible. We should not be afraid of problems and think of the situation as an opportunity to improve; When both the employees and the management of the organization start to admit that the improvement of work quality is as important as the activity itself, we can say that the „Kaizen spirit has been installed in the company”. The Kaizen techniques help us focus on the basic way that we can work. The improvement of work quality should be continuous. Kaizen must become a way of being, an attitude, and it must be permanently present within the company; Following the 5S steps, we managed to identify more easily the problems that made the activity of the sale and service processes more difficult; the Kaizen actions must be daily practiced and their immediate result will be the elimination of scraps , the reorganization of the working areas and the discovery of better ways to achieve the working tasks of each employee.

After the interpretation of the results obtained in the Kaizen – 5S workshops, it has been confirmed that the implementation and application of the Kaizen concepts need no investments or major expenses, but only more attention paid to details and practical means to work intelligently.

#### IV. CONCLUSIONS

The KAIZEN principles presumes a practical approach and low costs of improvement. The Kaizen management system is based on the continuous loss reduction by means of methods that do not rely on investments, but on the improvement of the processes and the employees’ performance. According to the Kaizen principles, we must

be sure that, when we take an action, our action will go on in the best possible way and is not merely an intermediate action to generate a temporary result.

Philip B. Crosby introduced the concepts of ”Do it right first time ” and ”Quality is free” according to which „ everything must be well done the first time and every time” and respectively „ quality costs nothing – what costs is lack of quality”. At the end of the study on the Kaizen 5S activities, we have selected a series of suggestions that can stand for a guide to use when implementing the Kaizen concept:

- KAIZEN – must be a way of being, an attitude, a spirit to be permanently present within each team; Our lifestyle, both at home and at work, should focus on our constant efforts to improve; The application of the Kaizen principles supposes a continuous dialogue between the manager and the employees (vertical communication) on the one hand, and between the employees on the same hierarchical level (horizontal communication), on the other hand.
- The application of the Kaizen principles involves no major expenses, but only more attention to details and practical ways to do things better and more efficiently; Problems should not be connected to people because blaming people does not solve the problem; Each approach should start with highlighting the positive parts; We should not judge or blame; we should use feed-back techniques.

Unlike the European management, the Japanese management focuses on the active involvement of all staff categories in the process of continuous improvement. [7] The directly productive staff is particularly encouraged so that they can suggest and make improvements. After a detailed analysis, we have noticed that, even in the areas where we consider no improvements are needed, there are still plenty of possibilities to improve. [8] A good management of human resources in the organization is one of the strategic objectives of the organization which should be clearly defined and accepted by all its members. [6] The Kaizen principles are the resistance structure that should be built on, so that we can get to a continuous, step by step improvement of the company performance. [9]

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