

UDC: 005
Review paper
Received: March, 02, 2019
Acceptee: April 08, 2019
Corresponding author: Ivana Petrevska
ipetrevska@yahoo.com

KAIZEN AS THE ELEMENT OF OVERALL MANAGEMENT QUALITY CONTROL

Petrevska Ivana¹, Ilić Ivana², Petrevska Miroslava³, Marković Branka⁴

¹ *Preschool Teacher Training and Business
Informatics College of Applied Studies-Sirmium,
Sremska Mitrovica, Serbia ipetrevska@yahoo.com*

² *Faculty of Business Studies and Law,
University Union Nikola Tesla, Belgrade, Serbia
ivana.ilic@fpp.edu.rs*

³ *The College of Tourism, Belgrade, Serbia
miroslava.petrevska@gmail.com*

⁴ *American Northwest University Travnik; BiH, larix.mb@gmail.com*

Abstract: *Kaizen is defined as business and management philosophy which represents gradual and continuous improvement of the work organization manner, product quality and services, processes and corporative culture as a whole. For meeting these terms knowledge is necessary, and not only in theory, but in practice as well, i.e. experience, the will to apply the available knowledge in solving perceived problems and faith that every business problem is possible to solve with one's own creative potential. Applying the Kaizen philosophy is very suitable for small, medium and large companies for several reasons. Some of them are including employees in business dealings and generally extracting ideas, innovations and developing strong relations between employees and the company, reducing waste to the lowest level, simpler function performance, etc. As a research problem the paper deals with damaging and unuseful activities in company business dealings which are usually not noticed, which makes management quality control more difficult, and which represents the key link in business dealings of any company. One of the main Kaizen concepts is restructuring and organizing even the smallest part of a business system, which is the basic precondition for top efficiency.*

Keywords: *Kaizen, management quality control, knowledge, restructuring and organizing*

Kaizen is defined as business and management philosophy which represents gradual and continuous improvement of the work organization manner, product quality and services, processes and corporative culture as a whole. Kaizen is a business philosophy originating from Japan, after the Second World War, when it was necessary to revive the destroyed Japanese economy as soon as possible. Japanese companies at the time faced a lack of capital for reviving production and had complex conditions for doing business. Applying Kaizen philosophy in business dealings is the solution they found. Teamwork is necessary for successful Kaizen implementation, i.e. the necessity to form and efficient work of multifunctional teams. Every company can do profitable work and achieve high profit, regardless of aggravated business circumstances, on the condition that the activities are oriented towards satisfying customer needs and that the business dealings are based on appropriate production philosophy, and not on applying partial organization measures. For meeting these terms knowledge is necessary, and not only in theory, but in practice as well, i.e. experience, the will to apply the available knowledge in solving perceived problems and faith that every business problem is possible to solve with one's own creative potential.

When introducing Kaizen it is necessary to consider the organizational culture in the environment where the program is intended to be implemented. It can, to a smaller or larger degree, be suitable for introducing changes, which directly depends on the level of corporative culture. Therefore, the willingness to change the way of thinking and deep-rooted prejudice, is often the first step in implementing Kaizen business philosophy. Applying the Kaizen philosophy is very suitable for small, medium and large companies for several reasons. Some of them are including employees in business dealings and generally extracting ideas, innovations and developing strong relations between employees and the company, reducing waste to the lowest level, simpler function performance, etc.

As a research problem the paper deals with damaging and unuseful activities in company business dealings which are usually not noticed, which makes management quality control more difficult, and which represents the key link in business dealings of any company. One of the main Kaizen concepts is restructuring and organizing even the smallest part of a business system, which is the basic precondition for top efficiency.

The aim of the paper is to point out to the importance of introducing Kaizen business philosophy, its methods and techniques in order to solve the research problem, i.e. increase management productivity, efficiency and quality. The research subject in the paper refers to Kaizen as an element of overall management quality control, in the sense of preconditions for more successful company business dealings. Methods used in this research are based on secondary, i.e. existing information sources (books, monographies, research projects and studies, articles, reports, Web information and other available bibliographic sources).

The paper consists of four parts. The first part analyses the Kaizen philosophy, and within it Kaizen management functioning and applying Kaizen quality. The second part refers to the Kaizen tools and techniques. The third part describes the Kaizen event. The fourth part of the paper refers to Kaizen as an element of overall management quality control.

1. KAIZEN PHILOSOPHY

Kaizen (*Ky'zen*) is a phrase made out of two Japanese words: *ky* (kai), meaning change or modification, and the word *zen*, meaning good. When these two words are combined their meaning can be translated as permanent, harmonious and continuous improvements. This is the essence of Kaizen philosophy. The basis of Kaizen philosophy represents an attempt to achieve great success and quality with small, but continuous improvements. Man's nature, who at the core is never satisfied with the achieved, represents the basic moving force of society development. (Papić, 2011)

Eventhough it originates from a Japanese traditional value system and culture, which formed in the period from XVII until the second half of the XX century, Kaizen is in fact a modern business philosophy. Kaizen arose and developed in Japan during the Second World War, when the Japanese economy was recuperating from war destruction. The USA played an important role in the rebuilding of Japan. As part of overall help Japanese experts and manufacturers had the opportunity to directly get to know the modern American production concepts and efforts to improve work efficiency. Considering the fact that the Japanese resources were minimal, the management of leading Japanese companies realized that it was necessary to use them to the maximum, and organize the production process in the best way possible in order to achieve the most savings and thus increase profitability. Improving production by applying the Kaizen philosophy, Japanese companies went several steps further when it comes to productivity compared to American companies. (Radosavljević, 2013)

Kaizen is defined as business and managing philosophy, which represents gradual and continuous improvement of work manner and organization. In every, even the best organized company, there is always the possibility for improving business processes and business dealing performances, which is closely connected with the level of corporate culture. In the Japanese production and business philosophy the existing state of business processes is always graded as "it is never good enough", and all achieved improvements must lead to a higher degree of customers' product satisfaction. Generally, the process of improving the process state can be done in two ways, i.e. through innovation or Kaizen program.

Innovation is a one-time event and an act of sudden and drastic state change, which is the result of investing into new technologies. Business process innovations are often accomplished through reengineering (Japanese term: Kaikaku). On the other hand, Kaizen is a process of lasting and gradual, step by step condition change, which most often is not conditioned by large financial investments. (Masaki, 2008) Therefore, Kaizen marks the incremental, continuous and overall improvement of business processes. The term "continuous" refers to the improvement of the existing process state which has no ending, i.e. not one day must pass without making a contribution to the company improvement and development. The term "overall" refers to including all business processes and management levels.

This does not mean that all employees have the same responsibility referring to the improvement of the existing state. The role of top management is to define the vision and goals, initiate, encourage and check the progress in introducing Kaizen. On the other hand, employees at the lowest hierarchy levels of the organization structure have responsibility in the sense of continuous efforts in coming up with new ideas for improving those processes in which they directly take part. In all of that the middle level management has the role of intermediary. On one hand, it stimulates task execution defined by the top management and at the same time, it reports on employees' activities and suggestions. Therefore, one can

conclude that in the implementing process of the Kaizen program dedication of the management and employees is equally important. Eventhough it originates from Japan, Kaizen is recognized today as a world movement with the aim of eliminating all forms of dissipating and thrifty use of resources in production and service processes and with equal applicability in economies of highly developed and developing countries.

1.1. Kaizen management

In Japan, management has the two most important functions: maintaining and improving. Maintaining regards activities directed towards maintaining existing technological, managerial and operation standards, and improving refers to activities towards improving existing standards. (Masaki, 2008) Within the maintenance function, the management executes given tasks, so that everyone in the company can follow the determined standard operative procedure. This means that the management has to firstly determine the policy, rules, directives and procedures for all important operations and to make sure that everyone in the organization follows the directives and procedures for all important operations and the standard operation procedure. The employees' work is based on existing standards, explicit or implicit set by the management.

Japanesse companies nurture a particular attitude towards work and at the same time distinct relations between management and employees, so that the common workers not only have the deepest commitments for company goals, but also for longterm interest and vision of its future. Due to such approach even the most common workers in Japanesse corporations are interested in and acquainted with the growth rate, realization, products and other details of the entire company's business dealings. Employees ask for such information. Should the administration hide such information or unwillingly put it at their disposal, they would consider it as a sign of mistrust towards the employees.

Preference of each individual for widely accepting company goals has lead to a frequently quoted decision making system in Japanesse companies which are called *ringi seido*. (Yoshino,1968) In such a decision making process, new propositions and decision regarding marketing or investments are often initiated by lower management level in the company. Those propositions then go through a hierarchy where votes are collected or minor changes made on the way to the president. Unofficially, the persons who started it or the bosses who collaborated with those suggestions deal with searching for the key persons. The term *ringi seido* literally refers to the decision making procedure according by which literally each individual that has something to do with implementation of some part of the suggestion is consulted. For the term *ringi seido* often the term suggestion system is used. Some suggestions fade out or disappear on their way to the top management. However, those that do remain, cannot just be ascribed to the person who starter it. The suggestions get the organization consensus before the top administration has accepted them.

The process of creating consensus among individuals, to which the decision refers to, pulls it away from certain people who started it or implemented it. The decision making process in Japan is difficult to separate from later realization. On the other hand, in Western and American work culture, the side which turns around decisions and the decision making process itself is separated from the ones who put it into realization. This explains why the Western or American directors frequently complain about the slowness in decision making of their Japanesse colleagues. Japanesse directors from their part object to

postponing which they come across with Western or American colleagues in the decision implementation. It is incomprehensible to the Japanese that any decision could be made without consulting the inner part of the organization. The characteristic of such a method is that, perhaps, it requires a lot of time. But, once the decision is made and the business partner is informed of it, it is considered that in doing so the implementation process begins. (Joši, 1982)

Japanese managers are willing to support change if it contributes to any of the following goals: make business easier, removes difficult elements of work, removes boredom out of work, work becomes safer, work becomes more productive, it improves the product quality and saves time and money. The practice of creating consensus in the decision making process in Japanese companies has led to two specific, national characteristics: considerably includes the middle managerial staff in making strategic decisions and management on the presidential company level from whom it is expected to, above all, deal with sudden and unambiguous changes in managing the company.

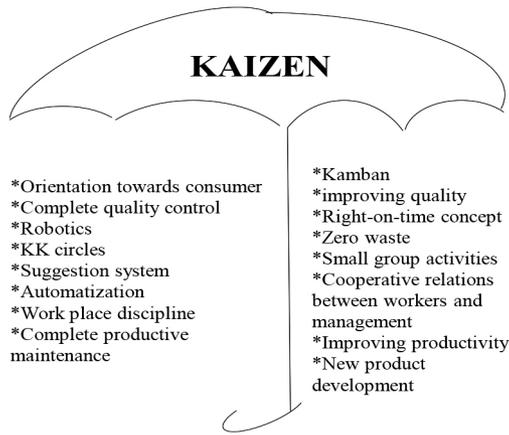
In the Japanese corporation the margin between upper and middle level management is often not differentiated. They are, mostly, seen as a group which is not only interested in fine tuning of business dealings according to the accepted company strategy, but also for searching for new moves. Whereby, the middle management level in a Japanese corporation acts as help in planning. On the other hand, the top management is expected to be actively interested in all details of the work of the middle management staff, but sustain from any real meddling. Japan is ruled by a deeply rooted feeling that the corporation belongs to all its members and characterizes their behavior in the work culture.

1.2. Kaizen and quality

Kaizen is an umbrella concept which entails the biggest part of uniquely Japanese solutions, which are spreading fast today through the world economy. The Kaizen concept includes: orientation towards the consumer, overall quality control, robotics, KK circle, suggestion system, automatization, work place discipline, overall productive maintenance, kamban system, improving quality, right-on-time concept, zero waste, small group activities, cooperative relations between workers and management, improving productivity and new product development. All these activities are shown in Graph number 1.

When considering Kaizen philosophy the terms quality control, statistical quality control, KK circles and overall quality control often appear. In Kaizen context quality cannot only be connected to products and services, but also to the way people work, machines function and apply systems and procedures. Quality includes all aspects of human behavior.

For continuous process or product improvement a chain of reactions is necessary, which was presented by Edward Deming in the fifties of the XX century in Japan. (Deming, 1986) Namely, Deming pointed out the importance of continuous interaction between designing, production, sales and research. He also emphasized that this four-step process needs to be continuously repeated with the aim to improve quality and services. Deming's reaction chain is also called "Deming's wheel" or "Deming's cycle". Deming's cycle of improvement has a wide use with all organization types on all organizational levels. It can be applied to the following company parts: production, logistics, informational technology, marketing, managing, quality.



Graph 1: Kaizen umbrella

Source: Masaki, I. (2008), *Ky'zen: Ključ japanskog poslovnog uspeha*, Mono i Manjana, p. 32

Statistical quality control is based on the so-called control diagram. When introducing this type of control one must take care of two factors: standard and control limits. The method is based on taking test samples from current production. Control limits show when some exit product is deemed satisfactory, and when it is unsatisfactory, and this is determined with the help of a highly developed technique, which is based on scientific, statistical methods. If a test piece is within the control limits, then measures are taken to eliminate causes of error appearance. In other words, the method requires informative control. Introducing these principles significantly improved the quality in the Japanese industry, but the application of this method is accompanied by difficulties.

KK circle is defined as a small group which voluntarily carries out quality control activities in the workshop. The small group continuously works within a broader program at the company level on quality control, self-improvement, mutual education and data exchange within the workshop.

Today, management has stepped out of the frame of the design phase and emphasizes the importance of quality product development, from gathering information about the consumers and researching the market to the product sale itself and guarantee, in order to answer to consumers who are more changeable and pickier with the demands. Doing so, quality control has grown into a completely developed Kaizen managerial tool and involves the entire company. The mentioned activities in the entire company are often called overall quality control or company level quality control.

Overall quality control is a movement directed at improving managerial result at all levels. As such it usually deals with: providing quality, decreasing costs, achieving product

targets, achieving delivery deadlines, safety, developing new products, improving productivity, suppliers, the field of marketing, sales and services. (Masaki, 2008) Overall quality control includes the most important managerial tasks such as organizational development, cross-functional management, implementing policies and quality.

2. KAIZEN TOOLS AND TECHNIQUES

Japanese management is very competitive on the world market by the following goals: high product quality, low production costs and production flexibility. For achieving their goals Japanese companies have developed several techniques, such as: procedure 5S, check list 3*Mu*, Kanban, Poka Yoke, Just In Time, Jidoka, work cells, One Piece Flow, SMED method (*Single Minute Exchange of Die*), etc.

Procedure 5S represents a set of rules for work place organization. The aim is to make each work place maximum efficient. Procedure 5S means arranging all necessary things in such a way so that they are easily accessible. 5S implies: sorting (*seiri*), scrubbing (*seisou*), straightening (*seiton*), standardizing (*seiketsu*) and self-discipline (*shitsuke*). (<http://marketinguj.me/kaizen-poslovna-filozofija-japanaca/>) Sorting implies separating useful from unuseful things. Throw away everything which is unuseful and excess and thus freeing space and enable better space viewing. Scrubbing means that every employee has the obligation to clean the work place at the end of a workday and to put back in place everything he used. Straightening means that every thing has to have its place. Tidiness is the basis for finding things. Standardizing means introducing standards into the production process. Setting standards facilitate mindwork, brings order and leads to simplifying the production process. Self-discipline implies repeating the previous principles, because in that way it forms a lifestyle. Applying 5S tools one expects to achieve saving time, space and money.

Production system LEAN is elimination and reduction of all sorts of dissipation (loses) or in Japanese „*Muda*“. Toyota Production System is often called LEAN. Characteristics of LEAN production system are large product variability, small series, small amount of stock, flexible production, and high quality. Production system LEAN, also, insists on primary appropriate execution of each product activity. Namely, there are no repetitions, no corrections, no mistakes, everything has to function flawlessly when it needs to and in a measure in which it should. Therefore, it is very important to recognize, not only the problem in the business dealing process, but its background as well, i.e. cause. Managers have to ask five times “why” and only once “how”. That technique is called the 5*Why*'s. Five questions “why” refers to the causes of the problem and the question “how” refers to the way the problem is solved.

The checklist 3 *Mu* is used with identifying, and then with actions in the direction of decreasing waste, loses, savings. *Mu* is an abbreviation from the Japanese words *muda*-dissipation, *muri*-overload and *mura*-discrepancy. *Muda* – dissipation is an activity which does not add value. Instead of forcing the employees to work harder, one should identify the non-productive and useless ones, consider them, change them or eliminate. *Muri* – overload and obstacle for doing a job well, shifting people and machines outside their limits. Problems arise due to bad planning and poor organization. *Mura* – discrepancy from the established production process which leads to productivity loses and effectiveness, and overall impacts the complete result. *Mura* is a loss caused by variations in quality, expenses and delivery.

Kanban is a simple information system which harmoniously manages material expenses and tools which achieve the *Just In Time* effect in production and transport with avoiding unwanted stock supplies. Kanban is just an aid, on its own it does not solve the problem. The real task lies in the systematic and overall improvement of the production system itself. (Šigeo, 1995) With the help of kanban system it is possible to determine and regulate, in a simple way, the amount of goods in the system. Considering the fact that this aid relies on the visual control principle, the control itself is very easy. The methods are simple and efficient and among other ensure continuous, fast and automatic production adjustment to the real needs. The system can be used only in repeated production. This sets high demands for production system stability.

Poka yoke is another method for disabling production errors. *Poka* means error, and *yoke* means preventing. These two words would loosely translated mean protection from mistakes. *Poka yoke* are devices which do not allow that an error occurs caused by the worker. (<http://tps-lean-posao.blogspot.com/2012/11/26-poka-yoke.html>) Several steps are needed in the process of developing one poka yoke device: describe a product error, i.e. potential mistake and calculate how often it occurs; determine a machine which generates mistakes on the product and a machine where those mistakes can be discovered; isolate machines and determine the root-cause why an error occurs during processing; when the root-cause of the mistake is determined, it is necessary to construct a *poka yoke* device. A system on how to make a device does not exist, but one needs to abide by the rules, i.e. to construct as simple a device as possible. Simple devices malfunction less and are easier to control. In the case of *poka yoke* devices company management and workers are satisfied. The management because production variation and the possibility of producing a bad product are decreased, and the workers because they are disburdened from the commitment to check products, and the new found time they can use for working on other activities or rest.

Modern use of the system *Just In Time* was popularized by Tairchi Ohno, Toyota vice-president with his colleagues, in the seventies of the twentieth century in the company Toyota. (James,1984) This concept was transferred to the USA in the eighties of the twentieth century and from there to European countries. Since then it has had a wide application in industry.

The *Just In Time* principle in Japanese means well planned in time. Well planned in time means punctual, at the right time. This means that every process needs to be equipped with first elements, in the right amount and at the right time. *Just in time* approach demands removing all sources of dissipating, everything that does not contribute to increasing value during production activities. The leading motif of this approach is that the right part is at the right place, at the right time. Production characteristics by the principle *Just In Time* are: production is carried out with much less stock, production expenses are lower and quality is better compared to traditional production approach. Workers are responsible for producing quality parts on time, and if it is not so, they are required to stop the production process and ask for help. Apart from that, workers are in charge of improving the production process through quality teams, a system for giving suggestions and other forms of participation. The main application of the *Just In Time* principle today is in serial car production, in electric industry, carpentry, etc. The aim of *Just In Time* production is increasing profits and quicker return of investments (rentability) through cutting costs, stock and improving quality.

Jidoka means autonomy, independence in the sense of independent quality control and spotting reject products. This principle prevents that the product, which is of unsuitable quality, comes from the previous process and stops or slows down the next operation. Automated machines has in-built stopping systems, whereby the occurrence of defect products is prevented on a larger scale, and if it is about production lines with mostly hand-craft work each worker may, in case of need, stop the entire line.

Work cells represent a rounded socio-technological system organized according to products or groups of very similar products. In this way material flows are efficiently managed. (Vasiljević, 2011)

One Piece Flow can be viewed as a flexible production organization system, in which group arrangement of work places is improved by characteristics of line organized production processes. In order to achieve one piece flow it is necessary to carefully balance the operations.

SMED method (*Single Minute Exchange of Die*) enables shortening the preparation time and adjusting machines, and thereby shortens the time from the moment the material enters the process to the finished product. During production preparation one must pay attention to the activities which must be carried out when the machine stops and the activities which can be carried out during operation of the machine. SMED method at the same time contributes to the improvement of overall effectiveness and flexibility of technical systems.

3. KAIZEN EVENT

Kaizen Event represents a team activity whereby using tools and techniques results are quickly achieved in eliminating dissipation in a precisely determined, focused work area (workshop or section of factory). The basic phases of the implementation process imply: defining plans and preparation activities, implementing events in a narrower sense and presentation and tracking results.

Within defining plans and preparation activities of the Kaizen event it is necessary to conduct: the choice of work area, choosing the problem, choosing and preparing the team leader, choosing team members, preparing the work area, planning the Kaizen event itself and implementing it.

When choosing an area which is to be involved in the Kaizen event, one must bare in mind that it is designed so that it presents result progress and new experience and a basis for educating new team leaders. Criteria for choosing the work area which will be involved in the Kaizen event can be: narrow bottle neck, frequent production stopping, the process is with important market or financial share, the process is easily recognized, the process is technologically or organizationally rounded, operators want change, operators possess multidisciplinary knowledge, operators have experience with Kaizen events and most employees are familiar with the field.

When choosing a problem which needs to be solved is in question, eliminating dissipation can be considered a general focus of Kaizen events. Dissipation implies each operation which adds costs, but not value to the product. The starting point can be implementing the 5S procedure, then eliminating narrow bottle necks and improving procedures for replacing and adjusting tools, so that some of the advanced techniques and tools such as one piece flow and balancing production lines are left for later.

The team leader should have experience in the chosen field, but also as a team member for implementing the Kaizen event, as well as project manager experience. The team leader introduces the team members with the goals they want to achieve, their obligations and responsibilities, with the manner of accessing data, etc.

With the help and support of the *Human Resources manager*, a selection of team members who will perform the Kaizen event is done. Team members can be from different fields. All team members have to have an exceptional inclination towards team work and all of them, led by the team leader, should go through training regarding basic Kaizen techniques and tools.

Preparing the work area by activities and time frames is part of the team leader's responsibility. If the work area is not organized, the team leader may make a decision to, before focusing on the event itself, organize them by applying procedure 5S. During preparation all support elements are provided, such as: technical equipment, material funds, tools, auxiliary workers, etc.

Planning the Kaizen event itself is determined by the manager or technical director of the factory, but only upon finishing the team leader's preparational activities. Such plans most often regard a period of one work week and are a result of joint work of the coordinator and team leader and are in the form of an agenda with the days and time schedule of planned activities.

Implementation of the Kaizen event starts with the introduction meeting held by the coordinator or team leader. On this occasion team members are acquainted with their tasks and responsibilities, roles and manner of work in the team. The top manager needs to assure the employees, i.e. team members that Kaizen is not aimed at abolishing their work places, but at cutting costs as a consequence of all forms of dissipation. Each team member is responsible for necessary equipment and consumable material, as well as a set of standard forms for monitoring the event and supervising the process. At the same time, all team members are acquainted with the team resources they will have access to. Such resources are: maps of flows and processes, work area photographs, area and factory arrangement, maps of monitoring production pace, lists of hired work force, current problems specification, rulebooks on safety at work, former projects on improving the process and basic company legislation. (Vasiljević, 2011)

After the introduction meeting and brief practice, members are informed about the current state in the work area. Documents are used for this purpose which can be useful for visual demonstration of the process state, such as Operations Analysis Table, standard work sheets, as well as a map of the process and charts for process analysis. With complex processes Summary Chart of Flow Analysis is used.

After the process of examining the existing state, priorities are set regarding process improvement. While developing the improvement idea itself some of the standard documents such as Major Waste Finding Checklist are used, where waste can be ranked by grading it from one to four. For determining waste which is harder to perceive or hidden, detail checklists can be used, which are formed according to the process specifics: *Detailed Waste Finding Checklist – Process Specifics*.

When the registration process and dissipation grading ends, finding the cause of dissipation is the highest priority. Then the 5W procedure is used (*Who, What, Where, When,*

Why) and cooperation is with the operators, i.e. direct operation executors in order to find solutions and improve the existing state.

Upon finding the solution and improving the existing state, made changes are presented with the help of measurable results. The presentation includes parallel demonstrations of the old and new work place arrangement, video and photo records and illustrations of accomplished improvements, charts of standard work and capacity, expense analysis, etc. During the presentation, each team member gives a short description of what he/she has learned during the Kaizen event itself.

Thereafter, continuous monitoring of results is carried out which implies getting feedback from direct operation executors on production lines participating in the event, whereby the first feedback information is expected during the following work week. Kaizen event ends with a formal certificate award and acknowledgements to team members.

4. KAIZEN AS AN ELEMENT OF MANAGEMENT CONTROL QUALITY

Applying Kaizen requires engagement of all individuals in the organization, from the director to the cleaninglady. The only difference is in the roles and responsibilities of these participants in applying the Kaizen philosophy. Namely, upper management is responsible for defining the Kaizen organization, setting goals and creating a culture which is stimulative for the development of Kaizen. Middle management has the task to provide logistical support, necessary materials, as well as the needed knowledge and skills to implement Kaizen. They lead specific improvement projects within their jurisdictions. Supervisors or leaders of certain work groups make sure that Kaizen is implemented on an individual level, as well as on a group or team level. Their task is to enable painless Kaizen implementation, that it is implemented according to standard operation business procedures. It is important because Kaizen does not mean change at any cost, but only change for the better. Applying Kaizen has as a goal the overall management quality control, which as a result has enhancement of performance and company quality.

Kaizen as an element of overall management control features several steps. Firstly, the employee training for applying the Kaizen philosophy is carried out, then the 5S procedure is done, then the 3R procedure, instruction visibility for Kaizen application is provided, employee suggestions are read, lectures from different areas are held for employees and team spirit is developed. (Pešić-Đokić, Đokić, 2010)

The training's basic purpose and benefit is to provide a deeper insight to the participants with the possibilities of improving the work they do, with the aim of achieving company competitiveness, increase employee productivity and client satisfaction, decreasing cycle lengths, decreasing expenses and involved facilities, flexibility and reaction speed to changes. All methods and techniques are accompanied by exercises (workshop), practical experience of methods and techniques, supported by examples from practice. The last 2 blocks are reserved for practice, i.e. pilot project. The participants choose on their own and in parallel work on mapping and analyzing the wanted process. Training ends with a presentation of potential results and possibilities for improving suggested exercises, pilot projects. At the training participants adopt an approach and master techniques which enable the development of practical solutions whose improvement can be seen through increasing the

level of resources used, finding a more efficient method for performing work, improving service quality and decreasing employee fatigue.

The foundation for Kaizen business philosophy is the 5S procedure which organizes the work in work meetings and improves the company efficiency. Tidiness and precision are not thought-out just for the visual impression, but the goal is not to spend more than 30 seconds on looking for the necessary thing and to prevent possible employee injuries. The 5S procedure which implies organization, tidiness, cleanness, standardization and discipline, is a method which is the easiest to implement, and which brings significant improvements. The aim of implementing 5S procedure is to enable doing business with the same intensity during the entire workday, i.e. week, that it affects “critical points” of fast fatigue and injuries (body position, arm, monotony, static, repeating movements, hard work). This approach enables that the work is done easier, faster and more efficient. The 5S procedure affects motivation, through organizing the work space, i.e. space (arrangement helps to find tools easier and quicker, tidiness helps with the better look, removes disturbances, creates comfort and space flexibility) which to a great extent can affect stress decrease, improving employees’ mood and their overall productivity.

Aside from 5S procedure the 3R is applied, in order to improve the company’s business efficiency even more. Namely, the 3R principle implies: right object, right position and right quality. What comes after this step is implementing 5S Audit which should secure monitoring of continuous improvement, as well as comparing with the previous state. It is the only way to secure that the improvements are conducted systematically, whereby the company builds itself from the inside, becomes more flexible, more ready for changes and new challenges.

The basic slogan used in companies that apply Kaizen philosophy is: “*Move To Improve*”. At almost every wall in the company there are simple instructions, marks and information which should facilitate providing a continuous process, employee safety and space tidiness.

The companies apply a suggestion system as one of the Kaizen tools and techniques. There is a glass box in plain sight in the company and a holder for forms. Each employee is encouraged to give his idea for innovations and improvement of the production process, to write it down in the form and put into the box, which is reviewed once a week. In this way, workers become involved in managing the company and become more loyal. It is the workers who work on the machines, that know the production process the best and only they can objectively view each problem which appears, and through a suggestion system react in good time, in order to contribute to facilitating and improving the work process. Employees whose suggestions have been accepted get rewards on a company level and have the right to participate in competitions for rewards on a regional level.

Companies that apply Kaizen have pictures of machines and tools on the walls and have squares drawn for moving machines within which they are parked. In this way, time needed for finding necessary things is saved. Also, beside each machine, laboratory or office are the names of employees with their pictures who are responsible for a certain function.

A technique which provides that all company employees understand through information presented to them in a visual form the work process itself is called visual management. It creates an environment in which things are obvious from the entrance moment. Visual information should be relevant, useful and on time. Visual management is present everywhere: in production, storage and offices.

Companies which implement Kaizen use *Total Quality Control Management – TQM* within which quality control is given attention throughout the entire product production process. Every 20 minutes a product sample is controlled according to legally regulated standards.

Changes in the work surroundings lead to business dealings culture improvements, but changes in employees' attitudes as well. Employees develop, teamwork is established which improves the company atmosphere and increases employee motivation. Good organization of work environment decreases unnecessary work, increases employee safety, productivity, which all lead to lowering costs.

Companies organize a series of activities for the employees. One of them is learning day, when employees have organized lectures in the field of business, but also an opportunity to master some new skill, and all with the aim to develop and improve communication. Also, internal practices are organized such as: project management, communication skills, presenting skills, etc. Company management and organization is characterized by the following important marks: teamwork, multiqualified workers, worker rotation in work places, special promotion and salary system, lifelong education, egalitarianism and wide information flow.

In companies implementing Kaizen, the first positive result is relatively fast productivity growth, then product quality improvement, and relatively fast production cost decline. These effects are achieved with the mentioned methods, Kaizen tools and techniques and better organization. Information flow increases among employees in direct production, which in essence increases cooperation, gives better work performance and acts positive on worker motivation. Basic company successes are: increased productivity, improved quality, reduced production costs, more information in direct production, bigger success in teamwork and satisfied workers in direct production. This all speaks in favour of Kaizen being the element which contributes to the complete management quality control in companies.

CONCLUSION

Kaizen (*Ky'zen*) is a phrase made out of two Japanese words: *ky* (kai), meaning change or modification, and the word *zen*, meaning good. If translated Kaizen implies permanent, harmonious and continuous improvements of work process, which is the essence of Kaizen philosophy. Kaizen is defined as business and management philosophy which represents gradual and continuous improvement of the work manner and organization. In Japan management has two of the most important functions maintenance and improvement. Within the maintenance function activities implied are directed towards maintaining existing technological, managerial and operational standards, and improvement refers to activities towards improving existing standards. Within the improvement function, management carries out assigned tasks, so that everyone in the company can follow the determined standard operating procedure. The Kaizen concept includes orientation towards the consumer, overall quality control, robotics, KK circle, suggestion system, automatization, work place discipline, complete productive maintenance, kamban system, improving quality, right-on-time concept, zero waste, small group activities, cooperative relations between workers and management, improving productivity and new product development.

Japanese management is very competitive on the world market by high product quality, low production costs and production flexibility. For achieving their goals Japanese companies have developed several techniques, such as: procedure 5S, check list *3Mu*, Kanban, *Poka Yoke*, Just In Time, Jidoka, work cells, One Piece Flow, SMED method (*Single Minute Exchange of Die*), etc.

Kaizen Event represents a team activity whereby using tools and techniques results are quickly achieved in eliminating dissipation in a precisely determined, focused work area (workshop or section of factory). The basic phases of the implementation process imply: defining plans and preparation activities, implementing events in a narrower sense and presentation and tracking results.

Applying Kaizen requires engagement of all individuals in the organization, from the director to the cleaning lady. The only difference is in the roles and responsibilities of these participants in applying the Kaizen philosophy. Firstly, the training of employees for applying the Kaizen philosophy is carried out, then the 5S procedure is done, then the 3R procedure, instruction visibility for Kaizen application is provided, employee suggestions are read, lectures from different areas are held for employees and team spirit is developed. In companies implementing Kaizen, the first positive result is relatively fast productivity growth, then product quality improvement, and relatively fast production cost decline. These effects are achieved with the mentioned methods, Kaizen tools and techniques and better organization. Basic company successes are: increased productivity, improved quality, reduced production costs, more information in direct production, bigger success in teamwork and satisfied workers in direct production. This all speaks in favour of Kaizen being the element which contributes to the complete management quality control in companies.

LITERATURE

1. Deming, W. E. (1986), *Out of the Crisis*, MIT Press, New York
2. James, M. R. (1984), *Management Accounting: Concepts, Techniques & Controversial Issues: Just-In-Time, Theory of Constraints and Activity Based Management Concepts and Techniques*, MIT Press, New York
3. Joši, C. (1982), *Japanci dolaze*, Beogradski izdavačko-grafički zavod, Beograd
4. Masaki, I. (2008), *Ky'zen: Ključ japanskog poslovnog uspeha*, Mono i Manjana, Beograd
5. Papić, Lj. (2011), *Menadžment kvalitetom*, Istraživački centar za upravljanje kvalitetom i pouzdanošću, Prijedor
6. Pešić-Đokić, S., Đokić, I. (2010), *Kaizen projekti u sedam koraka*, Festival kvaliteta, Mašinski fakultet, Kragujevac
7. Radosavljević, G. (2013), Svakog dana u svakom pogledu, Časopis: *Exporter*, SIEPA, Beograd
8. Šigeo, Š. (1995), *Nova japanska proizvodna filozofija*, Prometej, Novi Sad

9. The productivity press development team, (2002), *Kaizen for the shopfloor*, Productivity Press, New York
10. Vasiljević, D. (2011), Implementacija Kaizen poslovne filozofije – program kontinuiranog unapređenja poslovnog procesa, Fakultet organizacionih nauka, Ekonomski horizonti, Beograd
11. Yoshino, M., Y. (1968), *Japans Manageriel System*, Cambridge, Mss., MIT štampa, New York
12. Blog spot, <http://tps-lean-posao.blogspot.com>
13. Internet marketing, <http://marketinguj.me>

