



The International Journal of
TRANSPORT & LOGISTICS
Medzinárodný časopis
DOPRAVA A LOGISTIKA

ISSN 1451-107X

GEMBA KAIZEN - UTILIZATION OF HUMAN POTENTIAL TO ACHIEVING CONTINUOUS IMPROVEMENT OF COMPANY

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Abstract: The paper contains definition of Kaizen philosophy and brief survey of basic terms. Important idea of the paper is utilization of human potential to achieving continuous improvement and competitiveness of company reached through Kaizen philosophy & Gemba Kaizen workshops. It is described in four - step Gemba Kaizen improvement principle. Afterwards paper defines detailed Gemba Kaizen flowchart, which also illustrates relationship between Gemba Kaizen and Plan – Do – Check - Act and Standardize – Do – Check - Act circles. In conclusion, paper summarizes some practical examples of savings, improvements and benefits, reached through Gemba Kaizen and emphasizes general thoughts of Gemba Kaizen.

Key words: Gemba, Improvement, Kaizen, Lean, Reduction, Waste

1 INTRODUCTION

Nowadays, a lot of companies struggle with problems. Some of them do not have problems only with profitability and good competitiveness, but they hardly can sustain at least in “positive numbers”. Therefore they try to improve and optimize their processes, flows, quality, services, etc. what in final consequence means reduction of their cost as much as it can.

Secret of costs reduction is in something more than just provide cheaper material, save energy or purchase “more effective” technology. It is in the matters such as management of resources and labor, systematic and continuous process improvement with waste and non value added activities elimination, standardization, work on shortening throughput time, increasing flexibility of the company, recruiting and training employees, etc. All these things we could summarize as optimization of production, support and administrative processes and in a modern language name as implementation of “lean thinking” to the company [2].

Many times, opportunities to pump ideas for improvement, optimization or reengineering decrease and companies ask why? “Why, when we try to follow lean thinking concept?” Well, it could be because of forgetting to one big company’s potential. It is just human potential. Maybe you turn with your heads and say “hey, what that guy is talking about?”, “we have in our company lean and six sigma specialists or green and black belts, we spread lean thinking from our productions to our administrative sphere, etc”. Everything above mentioned is very positive and beneficial, especially lean in administrative is very valuable. But I kept in view human potential of “common” regular employees like operators, line technicians, stock keepers or maintenance workers. In these people I see huge resource of ideas. They are people which we have every day in front of our eyes. We go around them and try to help them to do their jobs more effectively and more simply. But many times could be the easiest and the best to ask directly them what should be done differently. As it often says, sometimes the only one difference between good and bad company is their people. And it is often forgotten.

Therefore, I would like to look at a methodology which deals with human potential, its utilization for company’s progress and easier sustainability of changes. This methodology is called Gemba Kaizen (GK).

2 KAIZEN DEFINITION

Term Kaizen marks the most widespread concept nowadays, focuses on continuous improvement of all levels of company and involves all [8].

This philosophy came from Japan. Father of Kaizen is Masaaki Imai, who said [6]: „Kaizen strategy is the single most important concept in Japanese management - the key to Japanese competitive success. Kaizen means ongoing improvement involving everyone - top management, managers and workers.”

Considering that Kaizen is everyone's concern, the managers have to also try to improve their own work. Japanese managers have generally decided that at least 50 % of their time should be spent at activities which are related to improving and developing [5].

People are the “engine” of continuous improvement. Toyota invests in people and therefore backwards gains the dedicated workers who go to work every day on time and continually improve their operational activities. During one visit at the Toyota assembly plant in Georgetown, Kentucky, it was found that the employees handed over 80 thousand improvement proposals within one year. Total of 99 percent of them were implemented in the plant [7].

Everyone is encouraged to come up with small improvement suggestions on a regular basis. This is not a once a month or once a year activity. It is continuous [7]. It is like never ending journey.

In previous information is clear evidence, that really just people are base of whole improvement. Not only managers or engineers, but also “common” workers - all together!

„The starting point for improvement is the ability to recognize the need for improvement. This comes from recognition of a problem. If no problem is recognized, there is no recognition of the need for improvement. Complacency is the arch-enemy of Kaizen. Therefore Kaizen emphasizes problem awareness and provides clues for identifying problems“, said Mr. Imai [5]. Idea in this section is for me also very interesting and makes sense. Maybe you do not believe, but I know managers who do the exact opposite i.e. hide problems. Strange!? Let’s rather go back to Kaizen.

Kaizen is way of thinking, acting and moves also into personal life and thus becomes a “kind of life philosophy”. This philosophy goes out from thought that tomorrow must be better than today [3].

Term Kaizen is composed of two Japanese words: KAI = change, ZEN = good (figure 1). Loose translation could be a “change to the better” or “continuous improvement”.

As synonymous of Kaizen are used more equivalents like: OIP (Ongoing Improvement Process), CIP (Continuous Improvement Process) or KVP (Kontinuerliche Verbesserungs Prozess) [4].



		
1	改	KAI CHANGE
2	善	ZEN GOOD (GO TO BETTER)
1 + 2	改善	KAIZEN CONTINUOUS INCREMENTAL IMPROVEMENT

Fig.1 Definition of Kaizen term

3 BASIC TERMS

- **Gemba** means the real place in company where things, problems, abnormalities happen - for example where products are developed or made or where services are provided, etc.
- **Gembutsu** means the real tangible objects/things in Gemba like machines, equipment, tools, etc.
- **Muda** simply means waste. But this word also carries a deeper meaning. Muda is any activity that does not add value. It exists in many forms (overproduction, inventory, waiting, motion, transportation, defects and mistakes, processing, etc.) and it has to be eliminated. Muda elimination can be the most cost-effective way of improving productivity and reducing operating costs.
- **Hansei** means responsibility, self-reflection and learning. It is part of culture and it is challenging for learning. Hansen and Kaizen go hand in hand. [7].

4 GEMBA KAIZEN IMPROVEMENT PRINCIPLE

At the beginning I have to say, that we know two basic improvement principles. First (which we do not analyze in this paper) is Innovation improvement approach. It is based on breakthrough solutions which are mostly expensive. But of course, in some cases, innovation is becoming a logical step in the improvement chain. Opposite of innovation principle is by me discussed Kaizen. It is focused on small incremental improvements executed every day based on low-cost solutions.

Principle, how Gemba Kaizen runs, looks very simply (figure 2). First step “go to Gemba” sounds very easy and it is simple to perform. But for Kaizen philosophy it is the very important point: do not solve the problems from behind the table, but in real place where things happen and with people who work in that process (workers) in daily base. So please, put effort and go among people, materials, machines, etc. what in final effect means also among problems. Then follows second step “observe Gembutsu”. Here is good to have some background of knowledge (for example about balancing of lines, logistics, waste, safety, ergonomics, etc.) and some practical experiences, too. Very often, only look at things, people, machines, flows, etc. without any tools and big analyzes, can uncover the problem. But, if you do not have big experiences, does not matter. Concentrate on everything what is happening there and think about it. Still better way how to understand it all, is to discuss with workers and try to manually do their work. With observing (and in some cases trying) of real things is closely related third point “search & find Muda”. It is great if you can see Muda. And when you really see it, you have to solve it, what is related to point number four “carry out kaizen”. About this fourth point will be information in following section and at figures number 4 and 5.

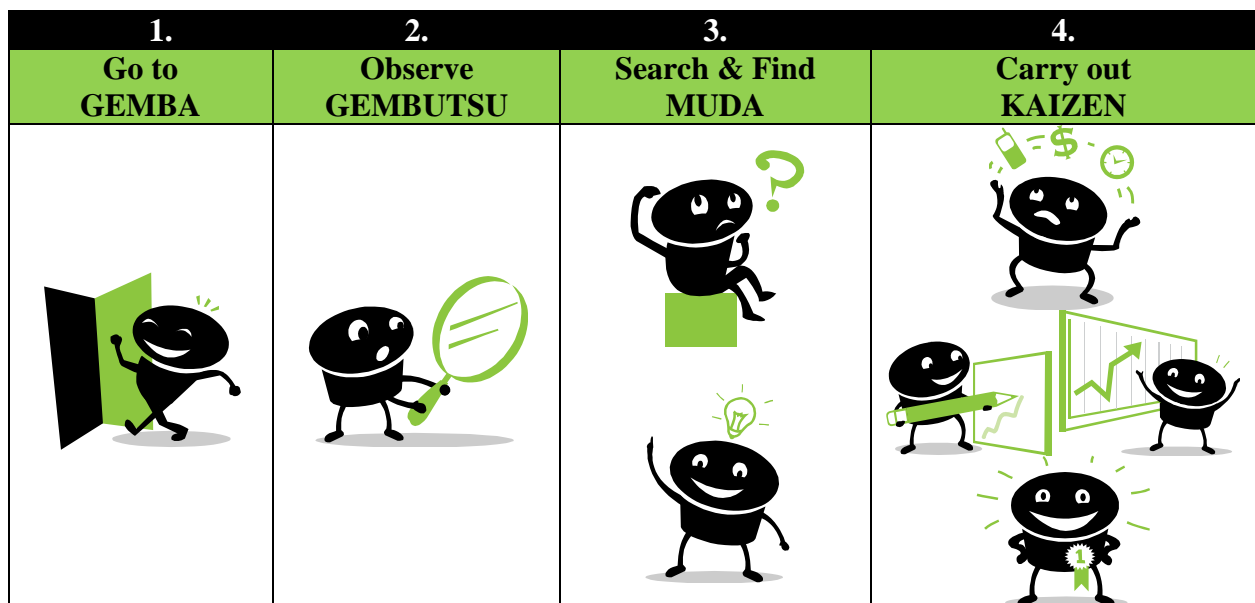


Fig.2 Gemba Kaizen improvement principle

You will become a winner, if you follow up all principles related to implementation and maintenance of improvements.

5 RELATIONSHIP OF GEMBA KAIZEN, PDCA and SDCA CIRCLES

In the 1950's Mr. W. Edwards Deming proposed that business processes should be analyzed and measured to identify sources of variations that cause products deviations from customer requirements. Mr. Deming created the diagram (figure 3) to illustrate this continuous process, commonly known as Deming or PDCA (Plan – Do – Check – Act) circle.



Fig.3 PDCA circle diagram

- **Plan** means definition of problem, analyses of actual state, data collection, identification of causes, planning counter-measures, definition of targets, definition of sources and propose of plan for next steps.
- **Do** means realization of the implementation phase to solve a well-defined problem.
- **Check** means validation of results from designed and implemented improvements, controlling of aims and possible final tuning.
- **Act** means work on sustainability of implemented improvements.

Mr. Deming travelled through the East countries and taught their companies about this methodology. They started to use this tool and now we can see it incorporated also in Gemba Kaizen philosophy. Figure 4 was created based on practice and it shows the GK flowchart with related elements of Deming circle. In next section I would like to deeper explain steps from GK flowchart (figure 4) in detail, how they should run.

I. Definition of Gemba Kaizen (GK). As I mentioned before, when we want to improve, we have to find problem, waste, bottleneck or from the other point of view opportunity. One very good systematic tool for finding opportunities is value stream mapping (VSM). During VSM are analyzed all processes and flows. Result from VSM is prepared value stream map, in which all important information like processes and their operators, lead times, cycle times, work in process, setup time etc. are included. Also there are drawn all material and information flows with their details. So, based on this map we have together whole current status with all pluses and minuses. There we can see our opportunities. Plus we have to analyze customer requirements, tact times, etc. And all these information put together and make review of current value stream map. That results to future value stream map. Differences between current and future state are basically our opportunities for improvement and achieving customer satisfaction. Just put them to the paper and we have defined (sometimes quite long) list of Gemba Kaizen opportunities, from which can by planned GK workshops (of course, very easy and immediately removable problems need not to be solved through workshops). This VSM activity should be repeated with some regularity (for example once per year). From my own experience I can say that this is very good, systematic and helpful tool.

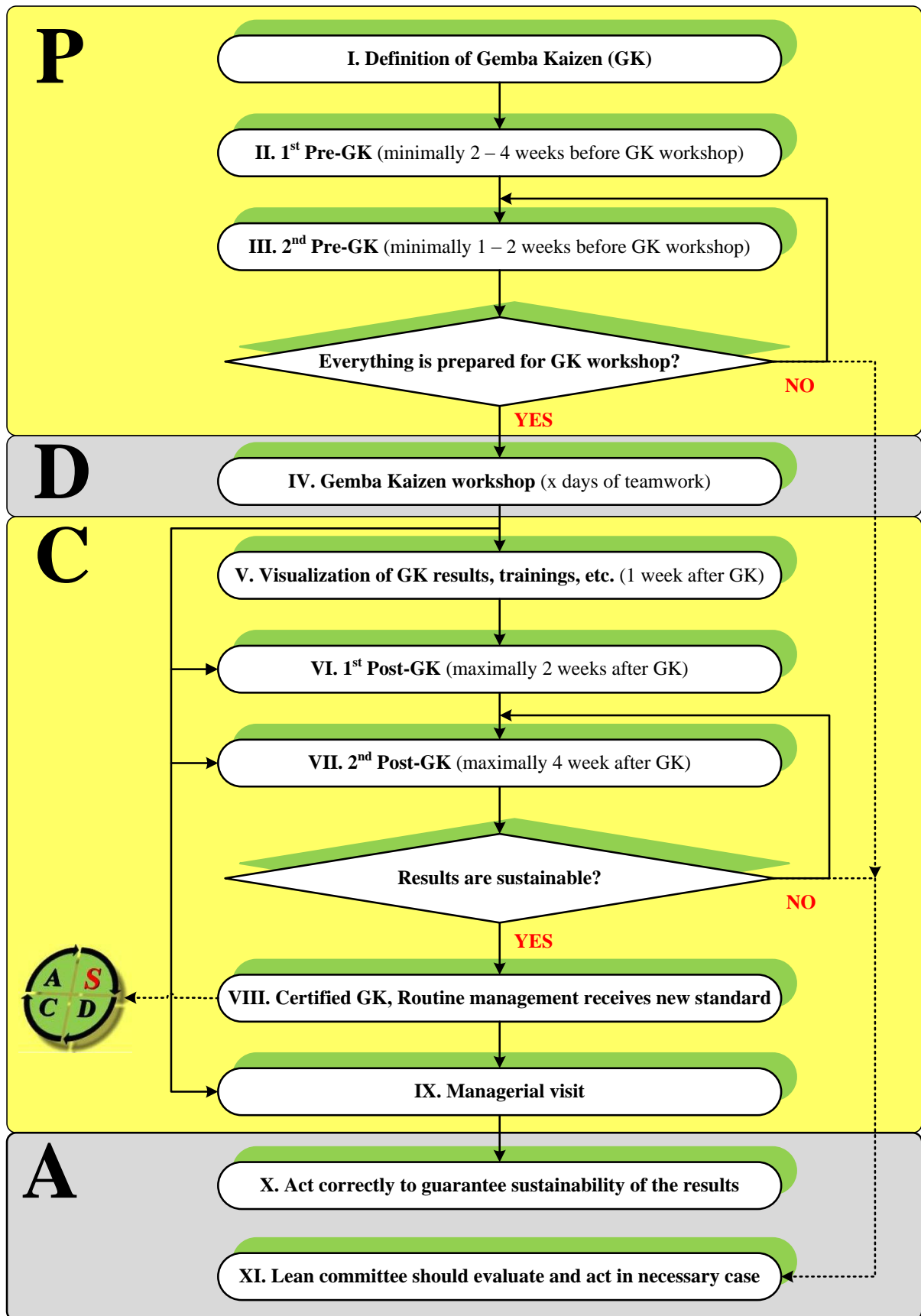


Fig.4 Gemba Kaizen flowchart

II. 1st Pre-GK (minimally 2 – 4 weeks before GK workshop). First Pre-GK is a meeting where meet an owner of the process with lean specialist who will lead that GK from the methodologist perspective. They have to discuss about expectations and define targets, basic resources (material, labor, etc.), GK leader and his deputy and specify the term and length of the workshop (based on workload and difficulty of solving problem/opportunity). If there is need for some data, owner of the process ensures their preparation.

III. 2nd Pre-GK (minimally 1 – 2 weeks before GK workshop). Second Pre-GK is a meeting where are specified another details. In this meeting is already participating leader of the GK workshop and his deputy. They define the whole GK team, which is divided into 2 groups. The first group is permanent team attending the whole GK workshop. It consists of operators, line technicians, storekeepers, maintainers, etc. These employees are focused only on GK, not at their usual work. The second group is temporary team which is supporting GK based on their need. Moreover, they check if everything is prepared. If yes, lean specialist sends invitation for all interested to that GK workshop. Finally, it is important to record the current status (photos/videos).

IV. Gemba Kaizen workshop (x days of teamwork). As I mentioned before, length of workshop depends on difficulty of problem/opportunity. Normally one week is enough. Workshop is officially started with targets and team presentation in the presence of plant, production and lean managers. After this introduction lean specialist presents and teaches GK team (already without managers attendance) about lean philosophy and important tools and methods which can be used during Kaizen event. He can use also some lean game for better understanding. This training takes from half day to whole day. After lean training, team looks to targets and then goes to look to Gemba and starts to analyze the problems and possibilities how to solve them. Then the action plan is developed. If necessary, team is split into smaller groups. Lean specialist and leader of GK supervise the progress of the workshop, control action plans, make photos from the progress and improvement, direct people when necessary, etc. Each employee has assigned a task for which takes responsibility. GK runs in team spirit and all members are equal. One of the sign of this can be wearing the same T-shirts during GK event. The process owner is continuously interested in the progress of the workshop. In case of some key decision he discusses it with management. Finally, the team prepares the presentation with progress and results of workshop and all together present it before the company's management and guests. After presentation is one more session with lean specialist and GK team, where people can express their opinions, feelings from lean, kaizen and of course the workshop itself. I was a lean specialist in my previous job and I can confirm that I heard mostly positive feelings and impressions. A lot of people changed their minds. This is fantastic. This is implementation of changes into practice. This is the spread of lean thinking.

V. Visualization of GK results, trainings, etc. (1 week after GK). After GK workshop it is important to visualize results from GK. The best place for it is directly on Gemba. Also based on changes from workshop there is important to train employees, show them changes, new things, new systems etc.

VI. 1st Post-GK (maximally 2 weeks after GK). This meeting is used to review the status and sustainability of changes/improvements on place where Kaizen was performed. Plus at this meeting has to be checked action plan from workshop (if all opened tasks were already completed). Process owner, lean specialist and leader of GK attend this meeting. They visit Gemba and physically verify the status. If there are any problems, lean specialist goes to help with their tuning.

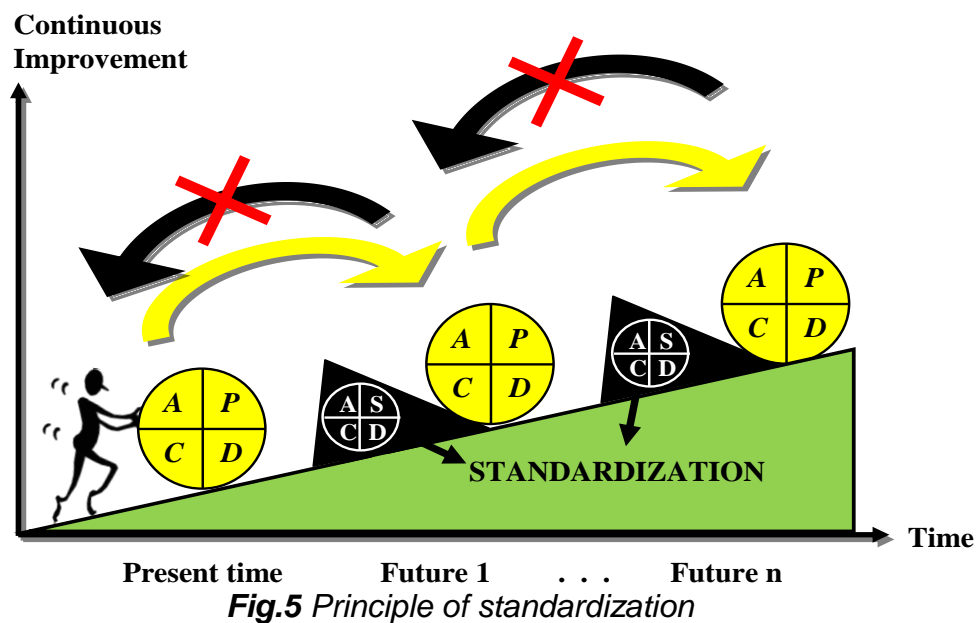
VII. 2nd Post-GK (maximally 4 week after GK). It is very similar meeting as 1st Post-GK. If problems still persist, this meeting is repeated. Among the meetings, process is fine-tuned. If everything goes well, new process can be standardized.

VIII. Certified GK, Routine management receives new standard. Standardization is a process that helps to maintain achieved improvement. It is illustrated at figure 5, where standardization is let's say "wedge" that prevents to get process back to previous (worse) status. Within standardization is prepared standard, in which are included all changes and whole staff is trained based on it. Standard is defined as the best way to do the job. Already in 1926 Henry Ford said very interesting thought to this topic. It is: "Today's standardization is an essential base on which tomorrows improvements will be built. When you think about standardization as the best that you know today, but what has to be improved tomorrow - you tighten it somewhere. But if you look at the standards as limitations, any progress will be stopped [7].

IX. Managerial visit. Good managers from time to time go down to Gemba and make let's say "Gemba walk" through processes/positions where GK workshops were performed. The reason is to make a survey about success and functionality of GK improvements. During these walks, managers talk directly with people working there.

X. Act correctly to guarantee sustainability of the results. Sustainability depends not only on standards, but also on regular system of trainings, discipline and morale of employees, etc.

XI. Lean committee should evaluate and act in necessary case. If any problems persist for a longer time, the lean commission meets and sets immediate corrective actions.



Differences and interconnection between PDCA and SDCA circles are very clear now. While PDCA improves the current process (= improvement), the SDCA standardizes and stabilizes the improved process (= maintenance).

6 GEMBA KAIZEN SAVINGS, IMPROVEMENTS AND BENEFITS

Without many words, please see some results from GK execution.

- Design of the line: 22 % productivity increase, 15 m² reduction, saving of 4 working places.
- Design of the line: 36 % productivity increase, saving of 5 working places.
- Single minute exchange of die (SMED): 60 % reduction of setup.
- Standardized work: 20 % productivity increase.

- Standardized work: 59 % lead time reduction.
- Standardized work: 120 m² reduction.
- Implementation of “milk run”: 45 000 € Work In Process (WIP) reduction.
- Kanban: 15 000 € WIP reduction.
- Higher employee morale, job satisfaction and lower turn-over.

The results speak for themselves and I think, there is no comment needed. Perhaps, only one note. As you can see in examples, GK can be used in several cases. What has not been mentioned is that GK is applicable also in line balancing, low-cost automation, design of “supermarket”, synchronization (kanban & junjo), logistics and delivery systems, waste management, lean office etc.

GK is not only about your company. It can be expanded also to your supply chain, where mutual issues with your suppliers or customers can be together solved. It does not matter in what kind of industry or services you work.

7 GEMBA KAIZEN GENERAL THOUGHTS

Based on my practical experiences from execution of GK workshops and study of Kaizen literatures [1-10] I have prepared short summarization of its general thoughts:

- Right now is the worst status of things.
- Kaizen ideas are unlimited (it discards conventional fixed ideas).
- Think about how something can be done and do not seek reasons why this cannot be done.
- Everything can be improved.
- Make every day one small improvement.
- To any improvement, even though there is little signification, attention must be given.
- Immediate incomplete solution is better than 100 % perfect but unimplemented solution.
- Kaizen does not need high investments.
- Do not obscure, but welcome problems, their solutions improve us.
- Eliminate the root causes, not just the consequences.
- Listen to others.
- Collect ideas from everyone and everywhere.
- Solve problems in team.
- Always be disciplined and moral.
- Kaizen workshop is quick access to the teaching and implementation of continuous improvement. Teams learn concepts and immediately apply them to practice.
- Kaizen discovers talents.
- Kaizen focuses more on process than result.
- Kaizen provides immediate results.
- Kaizen does not accept solutions which are not in compliance with quality, safety and ergonomics.
- Kaizen is about creating company culture that does not tolerate waste.
- Kaizen requires strong management support and involvement.
- Kaizen’s clear message is “do it better, make it better, improve it even if it ain’t broke, because if you do not, you cannot compete with those who do.”

8 CONCLUSIONS

Most of discussed things in this paper were from my personal experiences with Gemba Kaizen philosophy. I see in it huge unlimited possibilities and simultaneously the progress of companies which go in the steps of this philosophy. Whether you decide for Gemba Kaizen way, or you will use another one, it is only up to you. But, do not forget that everything starts with willingness to change.

Just in this paper frequently mentioned utilization of human potential is from my point of view strong competitive weapon. On the one side, it can bring a lot of good ideas for change what can contribute to company progress. And on the other side, by direct human involvement to the improvements issues can be ensured easier enforcement and maintenance of implemented changes in practice.

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