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## RESEARCH ARTICLE

# KAIZEN TECHNIQUES: A LITERATURE REVIEW

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### ABSTRACT

Today is the world of tough competition; any industries in the world are under a constant dilemma to reduce cost and improve quality. To overcome this dilemma and confusion, company are required to follow some modern techniques like Active Base Costing, Target Costing, life cycle costing, Kaizen costing and many other available techniques. But most popular among this are Kaizen costing. By using the kaizen techniques company can increase their production and improved overall efficiency of the company. This paper discussed on different literature that have been published in the field of Kaizen techniques and present a Review of literature. This review of literature will help to the new researched for their further studies.

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## INTRODUCTION

Kaizen is a word in Japanese and it means improvement for small or big, it may be one time or continuous. Improvement in kaizen is small and continuous but process give us ultimate result (Imai 2012). Kaizen Philosophy is like "East meet West" that is theory was perceived by the US government, but was adopted by Japan during the post-World War II, where it was wholly destroyed in the war (Sarah 2019). It has two word: Kai (change) and Zen (for the better) (Palmer, 2001). Kaizen Costing Defined by Widener and Kennedy (2008) as continuous improvement and cost and waste can be reduced by Kaizen Techniques. According to Imai (2012) Today organization whether profit oriented or not are making difference by adopting kaizen philosophies and techniques. He further says that name of techniques may change or name may change but most successful and powerful techniques is kaizen Techniques.

**Some Important Techniques:** Some of the important techniques commonly used in kaizen are:

- **Gemba:** In Japanese, Gemba means "real place" the place where real action occurs. According to Masaaki, in gemba one sitting on the top management and one sitting at the bottom of the management structure both are equally important. The improvement should be top down and bottom up. (8)
- **PDCA/ SDCA-** Plan Do Check Action / standardized Do Check Action: It is also known as Deming Cycle. As per Masaaki (2012) SDCA helps in standardizing the process and it is referred as maintenance where as PDCA refers to improvement. (8)
- **6S kaizen-** This method was originally intended to organise a work place for efficiency.
- **Seiri (Sort):** Only essential items are required to keep and material not used should leave the work area. Purpose of sorting Phase aims to provide a clean area so that further steps are carried out.
- **Seiton (Strengthen/ set in order):** In this stage all the items are organised and has a proper place. All the items at the workplace are so organised that it makes the people in the organisation to complete the task with ease.

- **Seiso (Shine):** Keeping the work place or area clean by the routine activities like dusting and further included maintenances of tools and machinery
- **Seiketsu (Standardize):** Keeping standard for process and organisation. This can be communicated through charts or list etc..
- **Shitsuke(Sustain):** Process developed in above S4 should be maintain and continued over a time.
- **Safety:** Its not a part of Lean concept developed by Toyota but safety should be key components for all the above S. (9)
- **3M's –**
- **Muri –** Overburden due to shortage of resources, inadequate preparation, or eliminating so much waste.
- **Mura –** Disparity or discrepancies which tend to be the origin of waste problems with 'muda'.
- **Muda –** Waste, for example, unnecessary transport, inventory, waiting, overproduction, or defects (8)
- **Poka-yoke (mistake proofing):** It ensure that before step are performed right condition exist. Where the steps are not in right place in that case Poka- yoke do the function of detecting it and eliminate defect in the process as soon as possible. It helps in increasing in quality of the product. (8). Poka Yoke find application in stable solution and helps in reducing the defects for Six Sigma Level.
- **5 Whys:** Its one the basic and simple techniques of kaizen implementation. The main purpose of this techniques is to determine the root cause of any problem. It refers to asking question 5 times to find out the reason for the failure. By the 5 question techniques one can go the root cause of the failure. (10)
- **Andon (light):** It refers to a technique that is used to notify and apprehension workers of problems that arise in the production process. It can be activated either manually or automatic.
- **Jidoka (autonomation):** It is also known as automation with human touch. It gives ability to distinguished good portion (part) from the bad portion (part) without being monitored by an operator. This led to multipurpose handling because operator don't have to inspect machine continuously and led to more gain and at the same time operator can handle more machine at the one time
- **KAIZEN Teian (suggestion system):** Kaizen is a Japanese word improvement or Change for Better while Teian means proposal or Suggestion. Together they describe a philosophy which dictates that small, incremental changes, routinely applied and sustained over a long period of time, result in significant benefits for a business. (11)

**Review of Literature Related to Kaizen Techniques:** The kaizen techniques and concept has influence on researchers as it leads to increase in production with less efforts and also increase its productivity. These are some of the techniques that has been disused by various authors which will led to the scope for further research. Radharamanan *et al.* (1996) apply Kaizen technique in small size furniture industry. The various problems that have been identified through brainstorming process are absence of appropriate methodology to assure quality, less compatibility of the individual protection equipment, old machines, and disorganized workplace, inadequate and insufficient number of measuring instruments,

lack of training, insufficient illumination at certain places and poor quality of raw material. Suggestions are also given to solve these problems. The main aim is to develop the product with higher quality, lower cost and higher productivity to meet customer requirements. Lee M (2000), author tries to explain the techniques and importance of 5S with the help of case study of Nichols food company. The author came up with the positive result stating that due to implementation of 5S and team training Programme performance of the employee could increase, reduce in waste time and defect. He further added that due to kaizen technique 5S work environment of the employee has increase and this motivated to achieve overall objective of the company. Hyland *et. al* (2004) the author describes the importance of continuous improvement as one of the way of increasing competitiveness, business performance in terms of reducing waste, set up time, break down etc... The author has identified different Continuous improvement tools and techniques. Malik and YeZhuang (2006), Author tries to explain that continuous improvement is required in any business to maintain the competitive edge. Spanish and Pakistani industries have been engaged in continuous improvement practice by implementing different strategies. For continuous improvement it requires involvement of all the employees and this in itself is never ending task. Michalska (2007), author tries to explain the concept of 5S Methodology with the help of case study which was introduced in the company. The author came with the conclusion that it brought great change to the company which implemented 5S. The positive result was cost reduction, increase in efficiency and effectiveness of production, increase in safety and reduction in pollution. Singh and Singh (2009) presented a paper on review of literature on kaizen techniques and philosophy. Literature explain that kaizen is widely accepted in manufacturing industries. Marksberry *et all* (2010) has explained the concept of jishuken in Toyota Production System. The author discusses that there are variations in understanding how Toyota grows its staff for kaizen. The author concluded that jishuken can be very useful in case of training employees for Kaizen and continuous improvement. The author further added to their findings that Jishuken function with Toyota system to continuously improve understanding not only on their problem but also to help in the problem solving of worker as a manger.

Aurel and *et. al.* (2010) presented a case study where management focus has been transferred from sales department to after sales services. One of the objectives is to reduce cost in after sales area. The author further explains the process of implementation of kaizen- 5S and were able to achieve the positive result without new investment or major expenses, but only through detailed and practical means to work intelligently. Tahat and Eteir, (2010) author show the ability of Jordanian manufacturing companies to apply kaizen techniques. The author has done comprehensive study of two manufacturing company who has implemented the kaizen techniques. The study was to understand improvement achieved by these companies. Then data were collected from 150 companies and to test the relationship between continuous improvement and process, upper management commitment and training of work force. The author measured the potential of the company to implement kaizen. Slobodan (2011) author explain the kaizen philosophy stating that quality circle, automation, suggestion system, kanban, 5S, gemba etc... all are included in kaizen system. The author state that objective of the kaizen is to reduce waste and eliminate the activities which do not add value. Kaizen see the problem as opportunity for

improvement. The author further tries to explain that two pillars of Toyota production system is just in time and jidoka. The author concluded that various strategies are studied by various university that to eliminate waste and improve production and productivity only through the kaizen. Rajesh Gautam and *et al.* (2012) presented a case of small and medium scale industries which stated that problem of shortage in production and quality issue. The author proves that kaizen and other techniques will lead to lower of manufacturing cost, decrease in shortage and increase quality. Bhuperndra (2012) conducted a study in Panipat steel plant to develop a Gemba kaizen culture in the organisation. The author explains the concept of Gemba and its implementation in steel plant. Problems were identified in the steel plant and target result were achieved after the implementation. This was only possible because workers, supervisors and managers were involved in all the process of implementation. Ravi kumar (2013) author explain the concept that kaizen is cost effective and customer friendly strategy that can be done with continuous improvement. He has described eight pillars for Total Productive Maintenances (TPM) and one of them is kaizen costing. To meet the quality of product and services delivery one has to follow continuous improvement (CI). The author opined that CI based on PDCA Cycle. According to author to achieve quality product and services company has to follow Kaizen. Pankaj and *et al.*(2013) presented a paper on literature survey for the implementation of kaizen. The author tries to explain that kaizen is one of the most recognized techniques of continuous improvement. Further author tries to explain "Kaizen Idea Suggestion form" which will helpful to different industries.

Haque and *et al.* (2014), author explain the importance of 5S and kaizen with the help of case study on Fashion club Industries, UK based company incorporated in Dhaka. The positive results showing that 5S methodology can be effectively used in the garment industries. The author explain that whole system was studied keeping it the mind 5S implementation. Due to implementation of 5S space was saved, average flow of distance was saved, overall reduce in the movement of stock. All these positive results lead to increase in labour productivity and overall productivity. Pratik Patel *et al.* (2014) the author tries to explain the concept of PDCA Cycle (Plan Do Check Action) and its implementation with the help of case study of Taper Shank drill Industry. The author concluded that quality tools were used for overall process and improvement. PDCA were applied on the company data which helped in analysis data and finding out root cause. These root cause were used to make action plan for more improvement. Jain and *et. al.* (2015) presented a paper on literature survey for the implementation of kaizen. The author tries to explain that kaizen techniques is effective in manufacturing industries to reduce loss, increase production and overall success of the organisation. It further emphasis that there is no proper or standard template sheet for pokayoko. The author further tries to develop sheet for the same. Ajay (2015), the author outline about methodology, step to be taken, resources required and target outcomes for the implementation of 7S as tool of organising workplace. Till now 6S were know author exhibit 7<sup>th</sup> S that is Spirit (team spirit). It further says that team spirit is very important as it indicates willingness to work as member of the team. The author explains implementation Process of 7S and also explain its importance. Workers feel self-motivated and they work towards goal

realisation. "Sphoorti Machine Tools" productivity has increase due to implementation of 5S.

Abhay and *et al.* (2016) authors considered following as the most significant barriers for any organisation like poor training, awareness of 5S, Lack of communication, gap between the top management and shop floor employees. If the above gaps are removed the organisation can get the full benefit of 5S. Authors concluded that one of the steps of success is training. In other words we can say training will led to successful implementation of 5S. The efficient implementation of 5S will lead to increase in productivity, improve environmental performance and reduction in waste. Along with this safety of the employee also increases. Henisha (2017) explain the concept of Gemba walk, Why Why analysis and quality control tools with the help of case study. The author discusses that Why Why techniques in any manufacturing organisation will lead to more productivity and more efficient by solving customer complain effectively. The author further explain that above techniques help to identified the problem in production process, enable to find out root cause of customer complain and to find out total rejection exceeding rejection target. The author concluded that the organisation in which above technique were implemented were able to increase quality and productivity and overall customer satisfaction.

Sunil kumar and *et al.* (2017) attempted to improve quality system of ten small manufacturing industries through the implementation of Kaizen system. The data was collected from the selected industries in the form of manpower, maintenance and training of the employee and output in the form of quality and on time delivery of their quality system. The kaizen technique was applied to identified and eliminate waste and non-value-added activities. They concluded that two of the above industries were able to achieve 100% efficiency while other reported 8 to 49% improvement in their quality system.

Krupkar and Kumar (2018) Presented a case study of where author tries to implement kaizen which help in reducing the cycle time and ergo burden on operator. Author tries to eliminate 3M and reduce burden on operator. Implement new way of operation which led to reduce in cycle time. The kaizen was implemented in automotive industries they were able to achieve reduce manufacturing cost, waste and improve quality. Chen (2018) tries to explain with the help of this paper kaizen methodology and techniques are rarely used in services industries. Paper suggest that new and innovative kaizen technique should be used in services industries. The author tries to explain Kaizen Methodology will help in overcoming traditional methodology. The modern method helps in integrating existing tools and model effectively but also result in more convenient calculation and application. Lubna (2019) author outline a case study explaining the success and failure of Kaizen programme in the organisation. It further explains that to implement kaizen there should be long term strategies. One of the important parts of this strategies is to involve all the employees. It further explains that implementation will became easier if there is continuous effort from all the employees. The author discussed that kaizen principles- one should take action; the action will go in best possible way and it is not merely an intermediate action to generate a temporary result. Kazi and *et al.* (2019) presented a case stating the remedies for production, efficiency and accuracy by kaizen Techniques. Author modified the company

could increase the production reduce material handling cost and high morale of the employee. Kapil (2020) Presented a case study of implementation of Kaizen Techniques and 5S in small scale industries. The author stated that small and medium firm faces problem like lack of productivity, greater lead time, processing time, stock out situation etc.... To overcome this problem author implemented kaizen and 5S in a firm. He further informs that due to implementation of kaizen, lead time of productivity will reduce and ultimately overall productivity will increase. Implementation of 5S helps in effective use of space, time, energy and other resources. The author concluded that kaizen implementation significantly contributed to overall productivity improvement. Vaibhav and *et al*(2020) presented a review paper on 5S methodology and just in time. The author tries to explain due to implementation of 5S productivity increases. Author further explain it helps in reducing the accident and increasing the work efficiency in any organisation. The author also explains crucial problem in 5S, implementation, layouts, barriers and its success.

## Conclusion

From the literature we can concluded that Kaizen technique is widely used technique all over the world. The success of kaizen technique is all dependent on joint effort of upper management and lower management. To implement kaizen technique successfully author feels that all the employees should be aware of all the strategies and Principle of Kaizen. Kaizen is extensively accepted techniques in manufacturing industries it can also be further used in other area like services, business, commerce etc. Great scope of research is available in this field. More research can be done which would help in improving alertness among the new entrepreneur or organization this ultimately would lead to more success in the process of kaizen implementation.

## REFERENCES

- Sarah Harvey 2019. "The Japanese Method for Transforming Habits, One Small Step at a Time"
- Palmer V S. 2001. Inventory Management Kaizen, Proceedings of 2nd International Workshop on Engineering Management for Applied Technology, pp. 55-56, Austin, USA.
- Kennedy, F. A. & Widener, S. K. 2008. A control framework: Insights from evidence on lean accounting. Management Accounting Research, Vol. 19, pp. 301-323.
- Masaaki Imai 2012. "Gemba Kaizen: A Commonsense Approach to a Continuous Improvement Strategy," Second Edition
- Chen, J.K. 2018. "A novel Kaizen technique for service quality: case study in educational organization", The TQM Journal, Vol. 30 No. 4, pp. 269-280.
- Prabhuswamy, M S; Ravikumar, K P; Nagesh, "Implementation of Kaizen Techniques in TPM" P.IUP Journal of Mechanical Engineering; Hyderabad Vol. 6, Iss. 3, (Aug 2013): 38-54.
- Rahman Lina, Hafiz Ullah, L. (2019). The Concept and Implementation of Kaizen in an Organization. Global Journal Of Management And Business Research.
- Imai, M. Gemba kaizen. A common sense, low-cost, approach to management, Kaizen Institute, Warsaw, 2008.
- Imai, M. Kaizen: The Key to Japan's Competitive Success, Random House Published, New York, 1986.
- www.isixsigma.com
- Nikkan Kogyo Shimbun 1997. Kaizen Teian 1: Developing Systems for Continuous Improvement Through Employee Suggestions Paperback
- Marksberry, Phillip & Badurdeen, Fazleena & Gregory, Robert & Kreaflle, Ken. 2010. Management directed kaizen: Toyota's Jishuken process for management development. Journal of Manufacturing Technology Management. 21. 670-686. 10.1108/17410381011063987.
- S. Ram Kumar and et al. Productivity enhancement and cycle time reduction in toyota production system through jishuken activity – Case study, Materials Today: Proceedings, Volume 37, Part 2, 2021.
- Krupakar, G.D, Dr. C.S Chethan Kumar, " Cycle Time Reduction Through Jishuken activity and Low Cost Automation (LCA)" , International Journal of Application or Innovation in Engineering & Management (IJAIEEM) , Volume 7, Issue 6, June 2018 , pp. 084-090 , ISSN 2319 - 4847.
- Rajesh Gautam, Sushil Kumar, Dr Sultan Singh "kaizen implementation in an industry in india a case study".[1] International journal of research in mechanical engineering & technology (ijrmet), volume-2, issue-1, April 2012.
- Ali, M.A., Siddiquie, M., Sojar, H., Yadav, R., & Kazi, J. (2019). Study and implementation of KAIZEN method at Mechmann Engineering Pvt. Ltd.
- Singh, J., Singh, H. 2009. Kaizen Philosophy: A Review of Literature, ICFAI Journal of operations management, 8(2), 51-72.
- Dhongade P M, Singh M. and Shrouthy VA. 2013. —A Review: Literature Survey for the Implementation of Kaizen, International journal of Engineering and Innovative Technology (IJEIT), Volume 3, Issue 1, July 2013
- Jain, Ashish. 2015. The Kaizen Philosophy for Industries : A Review Paper.
- Radharamanan R, Godoy L P and Watanabe K I. 1996. "Quality and Productivity Improvement in a Custom-Made Furniture Industry Using Kaizen", Computer and Industrial Engineering, Vol. 31, Nos. 1/2, pp. 471-474.
- Kapil (2020) "Implementation of kaizen & 5s management: an approach to Indian industry", International Research Journal of Engineering and Technology (IRJET), Volume: 07 Issue: 08 | Aug 2020
- Ajay Anantrao Joshi 2015. "a review on seven s (7s) as a tool of workplace organization" international journal of innovations in engineering and technology (ijiet).
- Vaibhavbharambe, shubhpatel, pratikmoradiya, vishalacharya 2020. "Implementation of 5s in industry: a review" multidisciplinary international research journal of gujarat technological university issn: 2581-8880.
- Titu, Aurel Mihail & Oprean, Constantin & Daniel, Greco. 2010. Applying the Kaizen Method and the 5S Technique in the Activity of Post-Sale Services in the Knowledge-Based Organization. Lecture Notes in Engineering and Computer Science. 2182.
- Haque K A, Chowdhury S and Shahwath A. 2014. "Implementation of 5s and its effect in a selected garments factory: a case study" Bangladesh Research Publications Journal; Volume: 10, Issue: 3, pp 291-297.
- HenishaB Raut and Arun Kumar 2017. "Implementation of Gemba Walk, Why Why Analysis and Quality Control Tools In Medium Scale Industry", International Journal for Scientific Research and Development, Volume: 5, Issue :3, Page No. 1119-1123.
- Pratik J. Patel *et al*, 2014. Application of Quality Control Tools in Taper Shank Drills Manufacturing Industry: A

- Case Study, International Journal of Engineering Research and Applications, Volume 4, Issue 2, pp. 129-134
- Kumar, Sunil & Dhingra, Ashwani& Singh, Bhim. (2017). Implementation of the lean-kaizen approach in fastener industries using the data envelopment analysis. FactaUniversitatis. Series: Mechanical Engineering. 15. 145-161. 10.22190/FUME161228007K.
- Al-Tahat, Mohammad &Eteir, Murad. (2010). Investigation of the potential of implementing Kaizen principles in Jordanian companies. Int. J. Product Development. 10. 962-6. 10.1504/IJPD.2010.029987.
- J. Michalska, D. Szewieczek, The 5S methodology as a tool for improving the organisation, Journal of Achievements in Materials and Manufacturing Engineering, Volume 24(2), October 2007, 211- 214.
- Abhay R. Kobarne, Vineet K. Gaikwad , Sourabh S. Dhaygude, Nikhil A. Bhalerao (2016) : “Implementation Of ‘5s’ Technique In A Manufacturing Organization: A Case Study ” SRJIS ,VOL-3/23, ISSN – 2278-8808, pp.1851-1872
- Prosic Slobodan, “Kaizen Management Philosophy,” I International Symposium Engineering Management And Competitiveness 2011 (EMC2011) June 24-25, pg.173 - 178 2011, Zrenjanin, Serbia
- Malik S A., YeZhuangT,“Execution of Continuous Improvement Practices in Spanish and Pakistani Industry: A Comparative Analysis”, IEEE International Conference on Management of Innovation and Technology, Vol. 2, 2006, Singapore. pp. 761-765
- Hyland P W, Milia L D and Terry R S (2004), —CI Tools and Technique: Are There any Difference Between Firms? Proceedings 5<sup>th</sup>CINet Conference, Sydney, Australia.
- Lee M (2000), “Customer Service Excellence Through people motivation and Kaizen”, IEE Seminar, — Kaizen: from Understanding to Actionl (Ref. No. 2000/035),Volume 5, PP 1-21

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