

Effect of KAIZEN on Managing Cost Levels in the Pharmaceutical Industry in Kenya

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Abstract

This article examines the effect of KAIZEN in managing cost levels in the pharmaceutical industry in Kenya. On - probability sampling technique under the category of purposive sampling was used. The population of interest was composed of twenty three pharmaceutical manufacturing firms located in Nairobi, registered in the Kenya Fact book 16th Edition, 2001 & The Kenya Telephone Directory 2004 and nine pharmaceutical companies , 23 employees in manufacturing, finance, procurement, warehousing were selected out of the target population of 28. The research instrument was a questionnaire. Analysis of the data was done using descriptive statistics and inferential statistics .The study affirmed by 82.3% that Kaizen (Continuous Improvement) had a statistically significant association with the cost level management. The study recommends that pharmaceutical companies in Kenya should fully adopt lean manufacturing in order to manage its cost levels hence give the firm a competitive advantage.

Keywords: Kaizen (Continuous Improvement), cost levels, lean manufacturing, Pharmaceutical companies in Kenya.

Introduction

Examination on the effect of KAIZEN in managing cost levels in the pharmaceutical industry in Kenya.

According to Schonberger,(2008), a Kaizen is a continuous improvement in Japanese. Schonberger, (2008), describes this exercise as a two to five day improvement event. This process does get results and at the same time may get the employees excited about further application of the method. A Kaizen exercise may be a project with a single focus: re-layout of the packaging area for example. More often, the target is an area, such as the packaging area, but with a general goal - to improve the packaging area. External experts or internal facilitators may lead the effort, along with, typically, a mix of direct and indirect labor and technical staff doing the data collection, task breakdown, analysis and the implementation. According Schonberger, (2008), Kaizen has been popularized through the efforts of Masaaki Imai and his 1986 book on the particular subject. A closer look at this book demonstrates that Kaizen, in practice, takes in about any idea for improvement. The production cells, visual management, the 5S systems, total quality and training are essential; however, these are excluded from the Kaizen exercise. Kaizen is an intensive attack on the wastes in which a cross functional team completes study and implementation in just a few days. Brown, (2006), describe KAIZEN as a combination of two words originating from the Japanese culture - good and change. More commonly referred to as “change for the better”, kaizen is a continuous improvement mindset that pursues elimination of waste. The Kaizen breakthrough methodology, as indicated in the diagram above, is a process where a cross-functional team is assembled for a one-week period to measure, analyze, improve and sustain an improvement to a process. It is an intense and focused process that relies on the creativity of the group/team rather than capital investment. Brown, (2006) suggest that one critical element to the Kaizen methodology is strong and effective leadership on each team. The methodology works best when someone within the organization champions the new Kaizen promotion and selects other strong leaders within the organization to lead the various teams’ breakthrough events. Further, the fact that effective teamwork and positive team performance is critical to the success of the Kaizen intervention; or any other change initiative in continuous improvement. Lean stresses the notion of continuous incremental improvement, expressed by the Japanese word “kaizen” (Womack, T. M., Jones, & Roos, J., 2007). Kaizen means that a state of perfect “leanness” is rather an ideal to pursue than a concept to be implemented. Lean manufacturing is founded on the idea of kaizen, or continual improvement. This philosophy implies that small, incremental changes routinely applied and sustained over a long period result in significant improvements. Kaizen, or rapid improvement processes, often are considered to be the ‘building block” of all lean production methods, as it is a key method used to foster a culture of continual improvement and waste elimination. Kaizen focuses on eliminating waste in the targeted systems and processes of an organization, improving productivity, and achieving sustained continuous improvement. The kaizen strategy aims to involve workers from multiple functions and levels in the organization in working together to address a problem or improve a particular process (Liker & Hoseus, 2008). The team uses analytical techniques, such as Value Stream Mapping, to quickly identify opportunities to eliminate waste in a targeted process. The team works to rapidly implement chosen improvements (often within 72 hours of initiating the kaizen event), typically focusing on ways that do not involve large capital outlays. Periodic follow-up events aim to ensure that the improvements from the kaizen “blitz” are sustained over time Kaizen can be used as an

implementation tool for most of the other lean methods. Paris, (2000) proposes implementing Kaizen changes as quickly as one can.

With increased globalization and internationalization of firms, Pharmaceutical companies in Kenya are facing several challenges in their production process. International pharmaceutical companies located. In technologically efficient countries have now entered the Kenyan pharmaceutical market hence taking the competition levels a notch higher. In order to be competitive in such an environment, it is important that Kenyan Pharmaceutical companies adopt lean manufacturing so as to eliminate unnecessary wastes in its pharmaceutical production process. Local pharmaceutical companies in Kenya face competition on two fronts; they compete with each other and collectively, they face stiff competition from imports. A number of factors have contributed to the flood of imported pharmaceuticals, many of which are substandard, into Kenya, including; Foreign drugs are easy to register with the PPB as Kenya was one of the first countries in the region to reduce its pharmaceutical import tariffs to zero, At the same time, local pharma producers are disadvantaged on a number of fronts; Since they lack WHO pre-qualification, they are excluded from donor-funded procurement, Since many are small firms, they do not have the capacity to participate in large volume tenders, They are facing severe price competition from imports and they are financially strained by delayed reimbursements from the government of duties and VAT already paid (Waithaka, 2005). From the above discussion, it is evident that the Pharmaceutical companies in Kenya need to adopt lean manufacturing whole heartedly

In view of the above review the following study was investigated:

The examination on the effect of KAIZEN in managing cost levels in the pharmaceutical industry in Kenya.

Methodology

Non - probability sampling technique under the category of purposive sampling was used. The population of interest was composed of twenty three pharmaceutical manufacturing firms located in Nairobi, registered in the Kenya Fact book 16th Edition, 2001 & The Kenya Telephone Directory 2004 and nine pharmaceutical companies , 23 employees in manufacturing, finance, procurement, warehousing were selected out of the target population of 28. The research instrument was a questionnaire. Analysis of the data was done using descriptive statistics and inferential statistics using Statistical Package for Social Scientists (SPSS) software in analyzing data. Analysis of the data was done using a combination of designs including descriptive statistics, frequencies and percentages. The former included means, standard deviations, and latter entailed Pearson's Chi-square test of association.

Results and Discussion

Assessment on Kaizen (Continuous Improvement)

In this section the researcher sought to find whether respondent's understood the concept of Kaizen and had been trained on Kaizen techniques. It is important that the role players understand the key concepts and are able to exercise and implement these learned concepts.

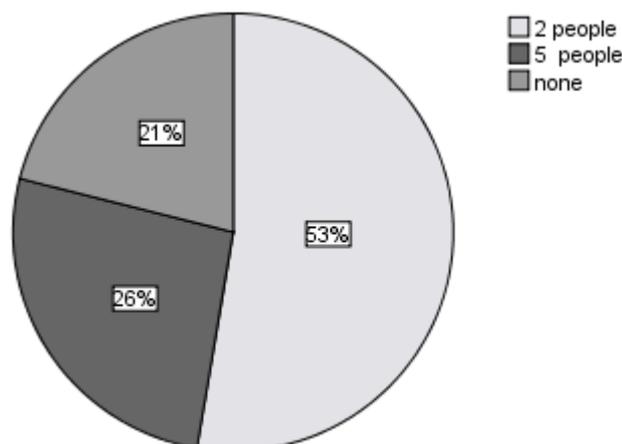


Figure 1: employees trained on Kaizen technique

Figure 1 above indicates the number of employees trained on kaizen techniques in respondent's firm. Majority of the firm 53 % had 2 people trained on kaizen techniques, while 26% of the firms had 5 people trained. Only 21% had no one trained. This implies that Kaizen, is a process where a cross-functional team is assembled for a one-week period to measure, analyze, improve and sustain an improvement to a process. The findings agree with the works of Brown, (2006) who posited that Kaizen is an intensive attack on the wastes in which a cross functional team completes study and implementation in just a few days.

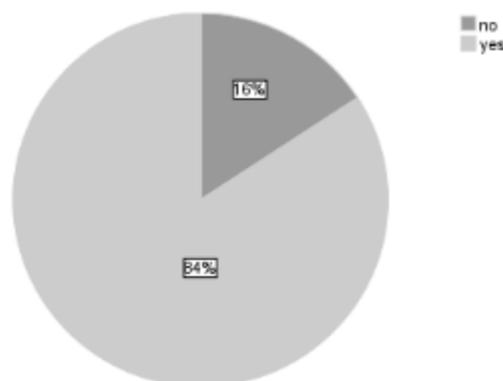


Figure 2: Formal means of listening to employees suggestions

Figure 2 above indicates the response whether firm's management have a formal means for listening to employees suggestions. Majority 84% said yes while the other 16% of the respondents had a no response. Kaizen requires bottom-up communication as employee involvement in any new system at the earliest stages will reduce the possibility of resistance. If immediate feedback along with "openness" to criticism is provided from higher-level management, employees will be willing to give comments and pinpoint mistakes about the day-to-day operation. This implies that employees' suggestions are part of continuous improvements. The findings agree with the works of Schonberger, (2008), who wrote that Kaizen, in practice, takes in about any idea for improvement.

Table 1:
Elements of Kaizen.

Elements of Kaizen	n = 19	Strongly agree	Agree	Not sure	Disagree	Disagree
The Kaizen blitzes assisted to identify minimum order manufacturing levels and cycle time of the products	19	(26%)	(53%)	(11%)	(11%)	(0%)
The teams organized and participated in continuous improvement exercises	19	(42%)	(37%)	(16%)	(5%)	(0%)
The level of the operator understanding in the system improved after Kaizen and other Lean interventions	19	(37%)	(31%)	(11%)	(21%)	(0%)
Continuous generation of ideas from the teams are received to facilitate further process improvement	19	(53%)	(32%)	(10%)	(5%)	(0%)
Management supports and participates employee involvement programs	19	(42%)	(37%)	(0%)	(21%)	(0%)
Management exhibits	19	(47%)	(53%)	(0%)	(0%)	(0%)

consistent support for quality procedures						
Department or team problem solving groups meet regularly and solve quality problems in their departments	19	(37%)	(58%)	(0%)	(5%)	(0%)
Quality errors are repaired or prevented at the source where they occur	19	(26%)	(47%)	(16%)	(11%)	(0%)

Table 1 A combined total response of 100 per cent agreed that management exhibits consistent support for quality procedures and 79% felt that the teams organized and participated in continuous improvement exercises while 95% of the respondents do have departmental or team problem solving groups which meet regularly and solve quality problems in their departments.

A 79% rating was observed for the teams organized and participated in continuous improvement exercises hence kaizen is continuous - which is used to signify both the embedded nature of the practice and also its place in a never-ending journey towards quality and efficiency. Kaizen is participative, entailing the involvement and intelligence of the work force, generating intrinsic psychological and quality of work-life benefits for employees as portrayed with a score of 95% under department or team problem solving groups meet regularly and solve quality problems in their departments.

The study affirmed by 82.3% that Kaizen (Continuous Improvement) had a statistically significant association with the cost level management hence the relationship between the variables was not due to chance. As seen in the literature, Schonberger, (2008) Kaizen (Continuous Improvement) positively influences cost level management .

Table 2:

Chi Square tests of association between Kaizen (continuous improvement) and cost levels management

	Pearson Chi-Square (χ^2) value	df	Asymp. Sig. (2-sided)
Kaizen blitzes vs Target costing	12.989 ^a	6	0.043

Quality procedure vs Target costing	7.040 ^a	2	0.030
Kaizen blitzes vs Purchase price	14.760 ^a	6	0.022
The level of operator understanding vs Purchase price	15.30 ^a	6	0.018
Management supports and participates in employee involvement programs vs Purchase price	13.902 ^a	4	0.008
Quality errors are repaired or prevented at the source where they occur vs Purchase price	14.378 ^a	6	0.026
Management exhibits consistent support for quality procedures vs Product costing	8.100 ^a	1	0.004
Management exhibits consistent support for quality procedures vs scrap factor	9.975 ^a	2	0.007
Team problem vs scrap factor	4.277 ^b	4	0.370
Quality error vs scrap factor	6.052 ^b	6	0.417

This level of analysis aimed at determining whether there was any association between Kaizen (continuous improvement) and cost levels management. In order to accomplish this, the Chi Square Test of Independence which tests the association between two sets of categorical variables, were computed. Only the output from the statistically significant findings was presented in the body of the discussion. Below, are the findings generated from testing for the bivariate relationship between Kaizen (continuous improvement) and cost levels management.

The overall relationship between Kaizen (continuous improvement) and cost level management was statistically significant as shown from the elements of Kaizen which shows an association between Kaizen blitzes and target costing at ($\chi^2=12.989$, $df=6$, $p=0.043$), there is an association between quality procedure and target costing at ($\chi^2=7.040$, $df=2$, $p=0.030$), there is association between Kaizen blitzes and purchase price at ($\chi^2=14.760$, $df=6$, $p=0.022$), there is an association between the level of operator understanding and purchase price at ($\chi^2=15.30$, $df=6$, $p=0.018$), there is an association between support and participation from management in employee programs and purchase price at ($\chi^2=13.902$, $df=4$, $p=0.008$), there is an association between quality errors are repaired or prevented at the source where they occur vs purchase price at ($\chi^2=14.378$, $df=6$, $p=0.026$), there is an association between management exhibiting consistent support for quality procedures and product costing at ($\chi^2=8.100$, $df=1$, $p=0.004$), there is an association between management exhibiting consistent support for quality procedures and scrap factor at ($\chi^2=9.975$, $df=2$, $p=0.007$), This implies that this association did not occur by chance but rather that there was a conscious effort by the pharmaceutical companies to minimize cost levels through continuous improvements in their operations

Conclusion

From the findings the relationship between Kaizen (continuous improvement) and managing cost levels was found to be positive. The results have shown that there was a significant focus on continuous improvement exercises as the teams became organized and displayed an increased level of participation. The level of operator understanding of the system improved particularly with the assistance of Kaizen and other Lean tools. A continuous generation of ideas for improvement was received in order to facilitate further manufacturing improvements. The teams had previously received training in various elements of Lean Manufacturing and had participated in Kaizen Blitzes in various operational areas prior to the full implementation of a Lean System. It was found that kaizen activities can be grouped into three levels, which were noted in all the companies' i.e. An enforced system of fully analyzed and reported kaizen projects available; as part of this, formal kaizen meetings are regularly scheduled among team members, sometimes with their supervisor, during which the teams not only discuss kaizen projects, but also review the overall production performance and issues occurring to identify topics for other kaizen activities, An intermediate level, "before and after" kaizen, deals with problems by implementing a simple solution on the shop floor and reporting on a single sheet with an explanation of the situation before and after, often accompanied by diagrams or photographs and an assessment of the contribution; such kaizen is often reported ex-post, Low level kaizen taking place continuously in a form similar to zero defects; on the shop floor, workers who know their expected performance, and how to monitor it, take corrective actions to keep on track when they fall behind or a quality problem occurs; such kaizen is unreported. It is so clear now that lean manufacturing, which is a systematic approach to identify and eliminate waste (non-value added activities) through continuous improvement by following the product at the pull of the customer in pursuit of perfection, results in a significant cost reduction. However there is lack of a general understanding of lean manufacturing practices and the pharmaceutical companies have not employed a systematic approach in their implementation. Companies have implemented these practices in isolation and have therefore not reaped the full benefits of lean. According to (Herron & Braident, 2007) lean tools should not be implemented in isolation; they were developed for a reason, which was to support an overall strategy. They have also suggested that it was better to embrace more lean tools rather than practicing one or two isolated ones.

Recommendation

The study recommends that, the feedback received from the respondents who participated in the survey indicated that the Lean manufacturing systems implementation was successful. Lean Manufacturing is based on the Toyota Production System (TPS). Lean Manufacturing implementation is a never ending improvement based on customer focus and waste elimination. There is no single recognized standard for the implementation of Lean. It is dependent on the organization and what the organization has perceived as its value creating activities that will influence the implementation. Lean can be implemented only when there is support from the senior team. If the Chief Executive of the organization does not support it, the progress of the Lean implementation will be limited. It is suggested that the organization first establish senior management support and then communicate this to all, in order to understand the importance of the project. Implementation of lean manufacturing practices should support the company business strategy. The implementation should be in line with the corporate vision, mission, values and plans including communication and evaluation plans to build employee buy-in and communicate results. This will ensure that

performance is measured to track actual performance against expectations, new initiatives, budgets including resources needed for new initiatives and current operations for lean projects.

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