THE MODERATING EFFECT OF ORGANIZATIONAL PRODUCTIVITY AMONG KAIZEN IMPLEMENTATION AND ORGANIZATIONAL PERFORMANCE IN SELECTED ETHIOPIAN CEMENT INDUSTRY USING PARTIAL LEAST SQUARE

Mulugeta Girma Dibiku, Dire Dawa University College of Business and Economics

ABSTRACT

Kaizen is being increasingly used in cement industry to enhance productivity and overall performance. However, how productivity mediates between kaizen and organizational performance affect has not been explored in previous research. The purpose of this study is to examine the mediating effect productivity among kaizen implementation dimensions (cost management, quality, delivery, operational safety) and performance. Survey data were gathered from 345 respondents working in selected cement factories in Ethiopia, samples were allocated proportional to the number of employees in selected organizations. Partial least squares structural equation modeling (PLS-SEM) was employed for the data analysis. The results suggest that the productivity highly mediate kaizen dimension (cost, quality, and operational safety) with overall organizational achievement/performance. Delivery is the least dimension mediated by productivity.

Keywords: Cost, Delivery, Kaizen, Performance, Productivity, Quality, Safety.

INTRODUCTION

The cement industry operates in virtually all countries everywhere and used the product in everyday life and it is hard to imagine a modern society without it. It provides the basic input to the construction industry which has major role among the modern global infrastructures and development processes. Furthermore for period of time the national development was measured by production and consumption size of the cement (Pipilikaki et al., 2009; Treloar et al., 2001). Statistics data shows 70 percentages of the global cement are produced and consumed in the developing countries where the construction development is much higher pace than the developed countries (Berger, 1997).

Thought the industry has all the features to be efficacious sector particularly in some developing countries, where row material abundantly available the sector is under pressure to reduce the downtime, cycle time, inventories and batch size, energy utilization (Pipilikaki et al., 2009). Such circumstance has forced the sector to look lean philosophy instead of the traditional mass production concepts such as Kaizen to meet high demands, increase the productivity, satisfy their customer and stay competitive (Bhatt, 2000).

Maurer states that kaizen helps to achieve business goals and maintain excellence for all industries if it implemented effectively. Imai suggests that kaizen has contributed greatly to competitive success. According to Lee (1992) kaizen helps to maintain a low cost of product quality, reduce waste; trim production lines, and overall productivity (Treloar et al., 2001).

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

However, achieving high machine utilization and production rates, low breakdown rates, and trouble free operation processes become the most challenging task in developing countries (Pipilikaki et al., 2009). That is also not different in Ethiopia where the cement industries face those challenge despite kaizen implemented (Lee, 1992; Georgise & Mindaye, 2020).

It has been 25 years since Ethiopia convinced by the positive contributions of the Kaizen and start to implement the system in manufacturing sectors found in the country (Georgise & Mindaye, 2020). However, the fruits of implementing kaizen hardly observed due to failure to understand policy instruments, methods, culture, principles, and application techniques of the kaizen (Georgise & Mindaye, 2020). Getachew, find out that poor understanding all principles and effective implementation of kaizen affects productivity and overall efficiency of manufacturing sector in Africa and Ethiopia. The purpose of the current study is to examine the moderating effect productivity between kaizen implementation organizational performances in the case of cement industry (Khan et al., 2007).

LITERATURE REVIEW

Globalization has offered several opportunities and many challenges to almost every business organization following the manufacturing's philosophy has witnessed fundamental changes since the elimination of craft production to be replaced by mass production system. New era has started when lean manufacturing perspective is introduced to be competitive in the marketplace critical for their survival and sustainable growth. Find out organizations are under pressure to reduce cost, customer lead-time and cycle time, and increase their productivity and quality.

The philosophy of kaizen has sparked substantial interest among scholars because it raises productivity of the company and supports to produce superior products with minimum efforts. Findings indicates that effective implementation of kaizen in Japan, USA and Europe significantly improve quality, performance and reduce cost of production in their respective production sector. Findings from China and other kaizen implementation had a positive effect on quality and productivity (Cheser, 1998).

Consistently reflecting that kaizen affects overall performance of organizations. Maurer states that kaizen helps to maintain excellence in cost, quality and overall business performance. Imai found that kaizen greatly helps manufacturing industry to be competitive by reducing cost, managing waste, time of reduction and distribution. According to Lee (1992) Kaizen helps organization to perform their business at low cost, simple technology and people focused manner effective implementation of kaizen help organization to be quality producers of goods, reduction in costs, increased throughput and increased flexibility.

Found out that poor implementation of kaizen in most developing countries costs in quality, performance, customer and overall success. Assefa found out that kaizen affects industry performance and nation economy general. Murata shows understanding all principles of kaizen and implementation increases organization productivity and overall efficiency clearly shows that kaizen implementation have positive impact on the performance of the industries. Desta et al. (2014) shows the costs of production, improved quality, reduced lead time and improved customer's satisfaction are the fruit of effective implementation of kaizen.

Kaizen implementation affects the cost levels for products and its desired cost level. kaizen minimize cost and decreasing waste by eliminating overproduction. Getachew also clearly presented that effective kaizen implementation contribute for Improving quality, being more

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

efficient, having less idle time, and reducing unnecessary activities in production line of manufacturing sectors.

According to Maurer effective kaizen implementation contributed greatly to competitive success. Study in Kenya shows kaizen implementation helps reduce the downtime, cycle time, inventories and batch sizes that also supported by Pipilikaki, shows due to implementation of kaizen the concern to quality, cost and productivity have been reduced in different manufacturing sectors.

Getachew Shows internal constraints to implement kaizen significantly effects the decision made to minimize cost, increase quality and improve overall productivity. García et al. (2013) lack of appropriate execution and monitoring of the kaizen project contributes for the increment of cost, decline of quality and weak performance.

Conceptual Model

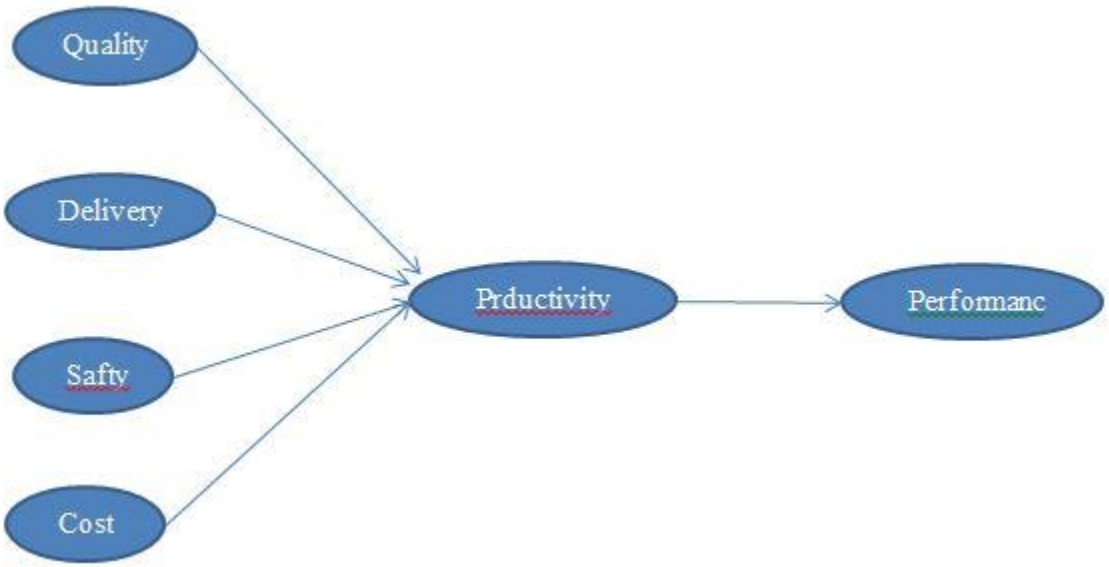

FIGURE 1
CONCEPTUAL MODEL

MATERIAL AND METHOD

Descriptive research design using PLS-SEM statistical technique was used. The technique used first for valuation of the measurement model and then evaluate the structural model of hierarchical components.

Sampling and Sample Adequacy

Data were collected from employees who work in production and managerial position in selected cement factories i.e., National and Ture Cement factories located in eastern Ethiopia. The sample consisted of 400 individuals working in two selected cement factories selected using

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

lottery method for proportionally allocated sample. Total of 345 usable questionnaires were collected for further analysis (Glover et al., 2011).

Sample Adequacy

Barclay suggestions of "ten times" rule were consider. Hence, the numbers of arrows pointing to a specific construction in the structural model were five arrows (Figure 1). Based on the rule 5 × 10 = 40 represents the minimum observations necessary to estimate the PLS path model of the current study. However, in the study, the observation is far exceeding the minimum requirement of 40 which is ten times of the minimum requirement (Soltani & Amanat, 2019).

Measurement Development

To select the items that used for measuring the construct, thorough review of literature were conducted. Hence, items were adopted from various researchers and contextual adoptions were made. Cost management five items, quality maintenance six times, operational safety two items and just in time delivery three items, productivity five item, operational achievement/ five items were developed and adopted form literatures. Questions were developed on a seven-point Likert scale, with 1 referring to totally disagree and 7 referring to totally agree. The instrument was pretested on selected individual at Dire Dawa university management staffs, and as a result, modifications were made to improve the content and make it more understandable and consistent. The data were collected in February 15 – March 2021.

Reliability and Validity

Reliability and validity of the proposed measurement model was estimated using the PLS-SEM statistical technique with the Smart PLS 3.2.9 statistical software (Zailani et al., 2015).

Data Presentation and Analysis

Validation and Data Analysis

To develop a predictive model representing the relationships between Kaizen dimensions, productivity and performance, a regression analysis was performed, based on the optimization technique of partial least squares regression. To evaluate the measurement model, validity was assessed in terms of the standardized loadings > =0.4 and t-values (>1.96). Based on the analysis all items' that was used for measuring predictor, mediating and predicted were significant and the loading values for the current study were above 0.4.

According to the recommendations of Hair et al. it is acceptable if the loading is 0.4 and above (Hair et al., 2014). T-statistics for management of cost, application of just in time delivery, improving quality, safety procedures implementation were used for the testing significance of the inner and outer model, using bootstrapping procedures. The result for the path coefficient for the outer and inner model T-statistic are larger than 1.96 and significant at p= 0.000. Hence, outer model loadings are highly significant. VIF for the for the current study were also below the maximum threshold of 0.5 showing there is no issues of collinearity between construct (Hair et al., 2014) Table 1.

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

Table 1
OUTER LOADINGS, OUTER- WEIGHT, AND T STATISTICS

	OL	T- Value	P -Value	OW	T -value	P- Value	VIF
Cost							
C1	0.81929	22.52648	0	0.32325	14.95897	0	2.09253
C2	0.82861	28.63804	0	0.30342	14.28137	0	2.25604
C3	0.82135	27.16436	0	0.28401	14.62212	0	2.0923
C4	0.55584	8.83727	0	0.19326	6.05956	0	1.46768
C5	0.60761	11.18394	0	0.23545	8.31617	0	1.48986
Just in time delivery							
D1	0.9442	107.846	0	0.33863	44.63693	0	4.55637
D2	0.95478	159.329	0	0.35357	53.52742	0	5.00004
D3	0.93941	124.989	0	0.36479	37.4853	0	3.83462
Quality							
Q1	0.76229	21.32658	0	0.25072	8.85032	0	2.05213
Q2	0.72099	17.44508	0	0.23621	8.50684	0	1.78616
Q3	0.71983	19.40084	0	0.22767	7.29231	0	1.70256
Q4	0.76386	21.66489	0	0.24613	8.64266	0	2.04688
Q5	0.71125	16.53692	0	0.17945	6.53241	0	2.19193
Q6	0.73031	17.66104	0	0.21777	9.15755	0	2.21412
Production safety							
S1	0.95611	127.911	0	0.53255	51.28722	0	3.08972
S2	0.953	104.4652	0	0.51503	67.60642	0	3.08972
Productivity							
PR1	0.87301	43.3835	0	0.404	16.43512	0	3.20677
PR2	0.8443	25.12139	0	0.39355	13.6112	0	3.09319
PR3	0.58059	5.98647	0	0.16284	7.15337	0	1.0602
PR4	0.53562	6.90434	0	0.23136	7.09363	0	1.35351
PR5	0.55543	7.59146	0	0.23249	7.74272	0	1.38227
Organizational achievement							
OC1	0.80387	27.14035		0.29358	9.92404	0	2.03904
OC2	0.76678	20.7069	0	0.27659	9.50025	0	1.78615
OC3	0.76183	23.30583	0	0.26659	7.95503	0	1.7025
OC4	0.73134	17.42059	0	0.2882	7.81842	0	1.82941
OC5	0.65697	13.07878	0	0.21012	6.18944	0	1.71832

Note: C= cost, D= delivery, Q= quality, S softy, PR productivity, OC organizational achievement - outer-loading (OL) , outer- weight (OW) and VIF= variance inflation factor.

Note: ***p < 0.001 (t > 3.30), **p < 0.01 (t > 2.58), *p < 0.05 (t > 1.96)

Sources: - Survey 2021

Direct Effect

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

The Smart-pls bootstrapping process results show that effective cost management and productivity have a positive relationship. The result of the path coefficient shows, 30% of the variance in changing of productivity affected by how the cost managed by the company. Also, the path coefficient shows, 3.7% of the variance in productivity affected by the application of just in time delivery in the organization. The regression path coefficient between productivity and performance shows, 45% of the variance in operational performance/ achievement were affected by the overall productivity, quality and operational safety also explain 5% and 80% in variance of productivity and are significant at p > 0.05. T- Statistics also larger than 1.96 for all paths in the study. VIF for the inner model for the current study were below the maximum threshold of 0.5 there is no issues of Collinearity between construct Table 2.

Table 2
DIRECT EFFECT

	Path coefficient	Original Sample (O)	Sample μ	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	VIF
C -> PR	0.30091	0.30091	0.30105	0.05456	5.51557	0	1.77128
D -> PR	0.03786	0.03786	0.03765	0.02766	1.36884	0.017	2.78518
PR -> OC	0.4508	0.4508	0.45842	0.05706	7.90099	0	1
Q -> PR	0.05139	0.05139	0.05189	0.02743	1.87369	0.012	1.788
S -> PR	0.81806	0.81806	0.81471	0.04839	16.90727	0	2.5773

Note C= cost, D= delivery, Q= quality, S softy, PR productivity, OC organizational achievement, VIF= variance inflation factor, μ= mean

*Note: ***p < 0.001 (t > 3.30), **p < 0.01 (t > 2.58), *p < 0.05 (t > 1.96)*

Sources: - Survey 2021

Indirect Effect

The relationship between C -> PR -> OC had a beta value of 0.135 showing productivity had a mediating effect between cost and organizational performance/ achievement. The finding also shows the mediating relation D -> PR -> OC shows, productivity were weakly mediate between delivery and organizational achievement/ performance. The path among Q -> PR -> OC had also shows; productivity weakly mediated productivity and performance of the organization Table 3. However, the path between S -> PR -> OC shows productivity were highly mediate between operational safety and organizational achievement or performance and were significant at p value > 0.05 Figure 2.

Table 3
INDIRECT EFFECT

	β	**Original Sample (O)**	**Sample μ**	**Standard Deviation (STDEV)**	**T Statistics (|O/STDEV|)**	**P Values**
C -> OC		0.13565	0.13979	0.03674	3.69242	0
C -> PR -> OC	0.13565					
D -> OC		0.01707	0.01752	0.01347	1.26687	0.02
D -> PR ->	0.01707					

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

OC						
PR -> OC						
Q -> OC		0.02317	0.02425	0.01409	1.64398	0.01
Q -> PR -> OC	0.02317					
S -> OC		0.36878	0.37144	0.03489	10.57035	0
S -> PR -> OC	0.36878					

Note C= cost, D= delivery, Q= quality, S softy, PR productivity, OC organizational achievement, μ= mean and β= beta value

Note: ***p < 0.001 (t > 3.30), **p < 0.01 (t > 2.58), *p < 0.05 (t > 1.96)

Sources: - Survey 2021

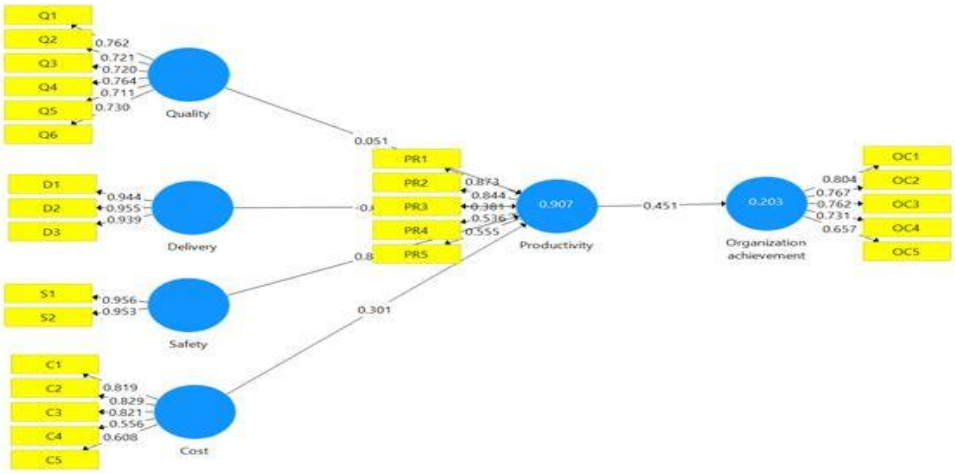

FIGURE 2
MEDIATING EFFECT OF PRODUCTIVITY BETWEEN KAIZEN AND ORGANIZATIONAL PERFORMANCE

Sources: - *Survey 2021*

Quality Criteria

Calculating (R2) Value

The inner path model's value indicated at 0.91 for the productivity latent-construct. It also shows that these constructs of the model significantly explain 91% of the variance between kaizen dimensions and performance explained by productivity Table 4. The results suggest that the model's mediator productivity caused 91% of the change in performance. A recommend threshold by Hair et al. (2014), were used to compare the output of the current study. Hence, R2 for the current was 0.91 showing the high effect of the mediator on the dependent variables. Hence, it indicated that R^2 and path coefficients (β) along with their significance fitted well for the current model assessment criteria (Wetzels et al., 2009).

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

Table 4
QUALITY CRITERIA AND MODEL FIT

F square			**R square**		**Model fitness**		
Constructs	Performance	Productivity	R 2	R2Adjusted	SRMR	d_G	NFI
OC			0.2032	0.20128	0.007	0.889	0.7
PR	0.25505		0.9072	0.90633			
C		0.55113					
D		0.2555					
Q		0.1592					
S		0.7993					

Note C= cost, D= delivery, Q= quality, S softy, PR productivity, OC organizational achievement, SRMR= square rot of mean error, d_G=goodness of fit and NFI= normed fit index
Sources: - Survey 2021

Measuring the Effect Size ($f2$)

The effect sizes ($f2$) of the performance, productivity, cost, delivery, quality ($f2$ = 0.25, 0.25, and 0.15 reflect a moderate effect between the independent, moderating and predicted variable. Cost and safety ($f2$ =0.55 and 0.79) were reflecting a high effect between the dependent and independent variable as it shown in the threshold recommend by Cohen, 2013. Hence, the findings on ($f2$) present a satisfactory connection between kaizen dimensions, productivity and performance (Tiwari, 2017).

The Standardized-Root-Mean-Square-Residual (SRMR)

SRMR that used for the measurement of a projected model's fit indicates satisfactory performance with the value of 0.07 which is below the threshold of 0.08. Hence, the model is acceptable. The results show NFI shows the value of 0.700 and goodness of fit value of 0.889, as shown in Table 5.

Validity and "Reliability

PLS-SEM technique was used to confirm the validity and "reliability of the current study. Reference to Hair et al. (2014) estimation of the "reliability, the indicators for the current study were higher than 0.50, and loading was significant at the level of $\alpha = 0.05$. To measure the validity of constructs on how a specific measurement truly measures, convergent validity test were conducted Hair et al. (2014) recommended examining AVE for verifying the convergent validity for construct levels. Except for one dimension, The AVE value that has a minimum threshold of 0.5 was ensured. The composite reliability for the study was above the value of 0.7 showing it meet the displayed threshold of 0.7 (Sarstedt et al., 2020).

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

Table 5 CONSTRUCT RELIABILITY AND VALIDITY				
	Cr. α	rho_A	CR	AVE
C	0.78219	0.80959	0.85216	0.54212
D	0.94147	0.9426	0.96244	0.8952
OC	0.79968	0.80746	0.86186	0.5562
PR	0.7671	0.76013	0.78503	0.44304
Q	0.83033	0.83357	0.87572	0.5403
S	0.90255	0.90328	0.95353	0.91118

Note C= cost, D= delivery, Q= quality, S softy, PR productivity, OC organizational achievement, Cronbach's alpha (Cr. α) reliability. CR = composite-reliability, and AVE = average-variance-extracted.

Discriminant Validity

The Fornell-Larcker test is also performed to check discriminant validity. Table 5 shows the square root of the AVE is greater than the corresponding inter construct correlations indicating the discriminant validity is well established Table 6.

Table 6 FORNELL-LARCKER CRITERION						
	C	**D**	**OC**	**PR**	**Q**	**S**
C	0.73629					
D	0.37686	0.94615				
OC	0.6354	0.38788	0.74579			
PR	0.58355	0.73311	0.4508	0.66562		
Q	0.64101	0.38761	0.98471	0.45434	0.73505	
S	0.32267	0.77947	0.28025	0.89976	0.27472	0.95456

Note C= cost, D= delivery, Q= quality, S softy, PR productivity and OC organizational achievement

Source: - Survey Data 2021

Heterotrait-Monotrait Ratio

Due to recent discovery of shortfalls of early discriminant validity measures such as cross loadings and Fornell–Larcker criterion (Voorhees et al., 2016). Heterotrait-Monotrait ratio of correlations (HTMT) were used as proposed by Henseler. Based on their recommendation Discriminant validity become an issue when the values of the analysis exceeded 0.85 (HTMT0.85) or 0.90 (HTMT0.90). Based on the result all the values between the constructs are lesser than the thresholds'. Therefore, it indicates that discriminant validity of this measurement model is ascertained and proves of no concern Table 7.

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

Table 7
HETEROTRAIT-MONOTRAIT RATIO (HTMT)

	C	D	AC	PR	Q	S
C						
D	0.45092					
AC	0.84246	0.44559				
PR	0.89396	0.82842	0.68951			
Q	0.82562	0.43526	0.70754	0.68672		
S	0.38863	0.84471	0.32755	0.7902	0.31372	

Note C= cost, D= delivery, Q= quality, S softy, PR productivity and OC organizational achievement
Source: - Survey Data 2021

DISCUSSIONS

The major aim of this study was twofold; the first goal was to examine the effect of kaizen (measured in terms of cost, delivery, quality and safety) affect organizational productivity in cement industry. The second objective was to study the effects of productivity on overall organizational achievement or performance. Hence, productivity was used as a mediating factor between kaizen and organizational performance Overall; the findings support the proposed conceptual framework of the study. Firstly, the findings show that effective cost management positively influences productivity, which is consistent with previous kaizen implementations research done. Second, just in time delivery had a positive effect on productivity though the effect is insignificant in the cement industry as it shown lowest beta value in the current study that shows difference from early finding that strongly supported JIT had a high impact on productivity in manufacturing industry.

The relationship between quality and productivity was also confirmed, which provides additional, industry context-specific signal for the findings of present studies related to cement industry. Also, in the current study, operational safety found to be the most influential factor for productivity as shown in the beta value. Yet, no study was found that studies its effect in the cement industry perspectives. Also, the finding shows, productivity affect organizational achievement or performance. The finding was consistent with. However, based on continuous serving perhaps no study were found that shows the mediating effect of productivity between kaizen dimension and performance despite the current finding shows there is a mediating effect in the construct variables of the study.

REFERENCES

Berger, A. (1997). Continuous improvement and kaizen: standardization and organizational designs. *Integrated manufacturing systems*, *8*(2), 110-117.

Bhatt, G.D. (2000). A resource-based perspective of developing organizational capabilities for business transformation. *Knowledge and process management*, *7*(2), 119-129.

Cheser, R.N. (1998). The effect of Japanese Kaizen on employee motivation in US manufacturing. *The international journal of organizational analysis*, *6*(3), 197-217.

Desta, A., Asgedom, H. B., Gebresas, A., & Asheber, M. (2014). Analysis of kaizen implementation in Northern Ethiopia's manufacturing industries. *International journal of business and commerce*, *3*(8), 39.

García, J. L., Rivera, D. G., & Iniesta, A. A. (2013). Critical success factors for Kaizen implementation in manufacturing industries in Mexico. *The International Journal of Advanced Manufacturing Technology*, *68*, 537-545.

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.

Georgise, F. B., & Mindaye, A. T. (2020). Kaizen implementation in industries of Southern Ethiopia: Challenges and feasibility. *Cogent Engineering*, *7*(1), 1823157.

Glover, W. J., Farris, J. A., Van Aken, E. M., & Doolen, T. L. (2011). Critical success factors for the sustainability of Kaizen event human resource outcomes: An empirical study. *International journal of production economics*, *132*(2), 197-213.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2014). Corrigendum to "editorial partial least squares structural equation modeling: rigorous applications, better results and higher acceptance"[LRP 46/1-2 (2013) 1–12]. *Long Range Planning*, (6), 392.

Khan, Z., Bali, R. K., & Wickramasinghe, N. (2007). Developing a BPI framework and PAM for SMEs. *Industrial Management & Data Systems*, *107*(3), 345-360.

Lee, C. Y. (1992). The adoption of japanese manufacturing managementtechniques in korean manufacturing industry. *International Journal of Operations & Production Management*, *12*(1), 66-81.

Pipilikaki, P., Katsioti, M., & Gallias, J. L. (2009). Performance of limestone cement mortars in a high sulfates environment. *Construction and Building Materials*, *23*(2), 1042-1049.

Sarstedt, M., Hair Jr, J.F., Nitzl, C., Ringle, C.M., & Howard, M.C. (2020). Beyond a tandem analysis of SEM and PROCESS: Use of PLS-SEM for mediation analyses!. *International Journal of Market Research*, *62*(3), 288-299.

Soltani, H., & Amanat, E. (2019). The mediating role of kaizen in the relationship between total quality management and organization's performance. *Journal of System Management*, *5*(1), 61-78.

Tiwari, P. (2017). Assessment of the practices and challenges of Kaizen implementation in micro and small enterprises: the case of manufacturing enterprises. *International Journal of Engineering and Management Research (IJEMR)*, *7*(4), 313-322.

Treloar, G. J., Owen, C., & Fay, R. (2001). Environmental assessment of rammed earth construction systems. *Structural survey*, *19*(2), 99-106.

Voorhees, C. M., Brady, M. K., Calantone, R., & Ramirez, E. (2016). Discriminant validity testing in marketing: an analysis, causes for concern, and proposed remedies. *Journal of the academy of marketing science*, *44*, 119-134.

Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS quarterly*, 177-195.

Zailani, S., Shaharudin, M. R., & Saw, B. (2015). Impact of kaizen on firm's competitive advantage in a Japanese owned company in Malaysia. *International Journal of Productivity and Quality Management*, *16*(2), 183-210.

Received: 01-Feb-2024, Manuscript No. jmids-24-14581; **Editor assigned:** 03-Feb-2024, Pre QC No. jmids-24-14581(PQ); **Reviewed:** 20-Feb-2024, QC No. jmids-24-14581; **Published:** 28-Feb-2024

Citation Information: Girma Dibiku, M. (2024). The moderating effect of organizational productivity among kaizen implementation and organizational performance in selected ethiopian cement industry using partial least square. *Journal of Management Information and Decision Sciences, 27*(S3), 1-11.