



Investigating the Effect of Kaizen Management on Industrial Performance at Kathmandu Valley: Empirical Evidence of Japanese Management Theory

Nischal Kutu¹, Mahananda Chalise² & Ranjana Kumari Danuwar^{3*}

¹Quest International College,
Pokhara University, Lalitpur, Nepal
²Center Department of Management,
Tribhuvan University, Kirtipur,
Kathmandu, Nepal
³Kathmandu Model College,
Tribhuvan University, Bagbazar,
Kathmandu, Nepal
*Corresponding Email:
ranjanadanuwar052@gmail.com

Received: 01 March 2024
Revised: 23 April 2024
Accepted: 14 May 2024
Published: 30 August 2024

How to cite this paper:
Kutu, N., Chalise, M., & Danuwar,
R. K. (2024). Investigating the
Effect of Kaizen Management
on Industrial Performance at
Kathmandu Valley: Empirical
Evidence of Japanese Management
Theory. *Quest Journal of
Management and Social Sciences*,
6(2), 263-281. [https://doi.
org/10.3126/qjmss.v6i2.69099](https://doi.org/10.3126/qjmss.v6i2.69099)

Copyright © by authors and
Quest Journal of Management
and Social Sciences.
This work is licensed under a
Creative Commons Attribution-Non
Commercial-No Derivatives 4.0
International License.
[https://creativecommons.org/
licenses/by-nc-nd/4.0/](https://creativecommons.org/licenses/by-nc-nd/4.0/)

Abstract

Background: Kaizen, originating from Miyazaki et al. (1986), emphasizes efficient work approaches, impacting global businesses. Despite its widespread adoption, Nepal faces queries regarding its efficacy and implementation challenges.

Objective: This study examines the effect of Kaizen Management on Industrial Performance at Kathmandu Valley – one of the core business cities of South Asia as well as challenges of Kaizen Management by providing the managerial solution for effective Kaizen Management.

Methods: Following the Japanese Management Theory (Theory Z), an explanatory research design is employed to identify causal relationships between variables in the study of Kaizen management. Based in the Kathmandu Valley, managers from 158 industries (35 from Bhaktapur, 62 from the Balaju Industrial Estate, and 61 from the Patan Industrial Estate) were selected using probability sampling techniques, and primary data were collected via survey methods using structured questionnaires.

Results: Employee Skills & Efforts, Working Area Impact, and Follow-up Activities all have a significant impact on how Kaizen management is implemented. This finding provides theoretical support for Japanese Management Theory. According to the results, Kaizen management is a new idea that has to be given greater consideration in Nepalese industrial estates.

Conclusion: Organizational rules and procedures need to be changed and amended more so that staff members, supervisors, and organizations may make significant strides in implementing Kaizen Management across industries in Kathmandu valley.

Keywords: Kaizen Management, Industrial Estate, Structural Equation Modelling, Nepal

Paper Type: Research Paper

JEL Classification: J53, M11, M12, O32, G32



Introduction

The term “Kaizen” was initially used by Miyazaki et al. (1986), who claimed that it is an umbrella concept encompassing a vast array of Japanese strategic plans that places an emphasis on how people approach their job. Cokins (2017) asserted that, despite the fact that there are many methods for achieving board success, management and workers may greatly affect one other’s viewpoint to work on their efficiency. Therefore, Kaizen is unique because it places a strong emphasis on how individuals carry out their work (Singh et al., 2021).

In Japanese management, Kaizen is used to define consistent improvement of efficiency and quality in view of a participatory cycle including the whole labor force involving both middle and senior management as well as regular personnel (Basu & Miroshnik, 2021). For this reason, Prosic (2011) highlighted that, Kaizen is a minimal expense way to deal with efficiency and quality improvement, since it does not need tremendous capital investment, costly innovation, or exorbitant innovative work (Cooper & Slagmulder, 2017). When compared to western management methods, the Kaizen approach typically differs because it places importance on the workplace, where real exercises are accomplished, and makes use of the experts there as the core of its initiatives (Helmold, 2020). Despite the fact that the owner and the directors are only accountable for making decisions and providing guidance, the experts are the important persons who offer recommendations for development and execution, using a base-up management style that empowers the workers (Magableh & Al-Tarawneh, 2021).

Farris (2008) made an effort to identify barriers to the successful implementation of Kaizen; the author argued that planning and avoiding pitfalls rather than organization size or resources made the difference between success and failure. Nevertheless, Kaizen management is constrained by its own set of constraints, just like every coin has two faces. The main cause of Kaizen torment is when a company is not fully committed to making Kaizen the cornerstone of their methodology (Georgise & Mindaya, 2020). Kaizen is a broad mentality where every employee is focused on improving things, not merely a collection of tools for implementation (George et al., 2022). Another significant drawback is that it ruins the entire administrative system. Returning to previous frameworks after kaizen may be challenging for corporations (Mui et al., 2021). Additionally, training personnel to adapt to such changes might be expensive and extremely time-consuming. The time and resources invested will be wasted if employees don’t make a contribution to implementing these improvements. The motivation of doing kaizen is ultimately undermined (Lev, 2004).

Albeit the idea of Kaizen is very easy to comprehend, it is challenging to dominate and will require time before it is completely perceived by all representatives. The principal issue with execution is that organizations frequently expect a fast pivot and perceivability in the span of a year, and when it does not show up, they regard Kaizen as a disappointment (Akdeniz, 2017). Similarly, absence of responsibility is only one of a few normal motivations behind why Kaizen execution falls flat. Kaizen won’t ever prevail in an association hindered by an administrative outlook, loaded up with rules and systems, with individuals who might oppose any kind of progress. This is a particular instance of social struggle: directors are more worried about ‘concealing the trash’ and who is to be faulted for any issue or imperfection than really captivating in a valuable discussion on the most proficient method to get to the next level. There is no genuine administrative purchase in (Nichols, 2020; Kerschner & Ehlers, 2016). Not every person is associated with the Kaizen drive – perhaps a few chiefs or some administration select Kaizen jobs, which will be viewed as the ‘people liable for Kaizen’. People will, however, feel as though Kaizen is just another burden placed upon them. Individuals will not have the option to nitpick administrators, simply decide, or, figuratively talking, stop the line. In many events groups will be approached to improve, however at that point there won’t be any organized opportunity to break down, reflect, and plan for development, nor any time or assets to devote to the planned upgrades (Schwämmle, 2022; Prado-Prado et al., 2020).

Despite the fact that, Kaizen management excellent practices are used in businesses around the world, particularly in Western and Asian countries as well as African countries (Ibidapo, 2022; Zi & Linke, 2021; Georgise & Mindaya, 2020). In the context of Nepal, Kaizen Management is a novel concept and there are several questions which have emerged and needs to be addressed like: What are the key factors affecting Kaizen Management on Industrial Performance? What are the challenges faced in implementing Kaizen Management? What can be the possible managerial solutions for implementing effective Kaizen Management? Therefore, this study aims to analyze the effect of Kaizen Management on Industrial Performance at Kathmandu Valley by identifying challenges of Kaizen Management and provide managerial solution for effective Kaizen Management in Kathmandu valley.

The remaining portion of the paper is divided into three parts. The literature review is discussed in the next section. The outcomes of the study are addressed in the part after the methodology section. The final portion is where the concluding statements are organized.

Literature Review

Development on Kaizen Management

Kaizen was originated in Japan in 1950 when there was a challenge of labor shortage and ineffective management practice (Berhe, 2021). The idea of process improvement got its foundation during this period of economic crisis after World War II. The concept of continuous improvement was developed in the US and transferred to Japan after the Second World War (Poth et al, 2019) where it got its name “Kaizen”. American researcher Deming, and others introduced various process improvement tools which eventually were developed in a Japanese way (Carnerud et al., 2019). Several types of research on Kaizen indicates that Kaizen philosophy has expanded outside Japan, rapidly on countries such as in US, Asia, Australia, Europe, and Africa with encouraging results in terms of improving productivity, cost reduction, lead-time, and quality. As Kaizen is expanded in many countries, many types of research assert that the implementation to be successful requires ensuring the context and culture appropriately adopted to Kaizen thinking (Ohno, et al., 2009). If the practices can be sustained, the Kaizen way of doing work will have an impact on the operational performance of organizations (Bwemelo, 2016). The history of Kaizen Management is presented in table 1.

Table 1: History of Kaizen Management

Kaizen Conceptualization	Year	Cited Author
Kaizen is a methodology that incorporates contemplations, frameworks, and devices inside the master plan of initiative affecting individuals and culture, all determined by the client.	1986	(Imai, 1986)
Cooperation figured in the idea of Kaizen-the commitment of coordinated effort to make the idea of Kaizen.	1990	(Wickens, 1990)
Kaizen is process-situated thinking-processes, should be worked on before improved results are acquired.	1993	(Hammer et al. 1993)
Persistent Improvement is an association wide course of engaged and supported steady development.	1994	(Bassant & Caffyn, 1994)
Kaizen reasoning in the business interaction the executives change the reasoning of both administration and representatives at all levels to zero in on esteem expansion.	1996	(Newitt, 1996)
Kaizen is lean reasoning and spread out a deliberate way to deal with assistance associations efficiently to lessen squander.	1996	(Womack & Jones, 1996)

Kaizen Conceptualization	Year	Cited Author
Kaizen depends on rolling out little improvements consistently lessening waste and ceaselessly further developing efficiency, security, and adequacy.	1998	(Cheser, 1998)
Constant Improvement strategy is the perceived approach to making huge decrease underway expenses.	2001	(Williams, 2001)

Source: Mani et al. (2009)

Kaizen Management in Developed Countries

The term most ordinarily utilized in the writing to allude toward the western variation of Kaizen is Continuous Improvement (CI), in spite of the fact that – as certain bring up – it flourishes more in references to the Japanese variation of Kaizen (Anwer, 2017). In this regard, a significant commitment to this Kaizen variation is the work, which follows the beginning of CI to drives attempted by the US Government during the 1940s and 1950s to build the country’s modern efficiency. The high association development model drawn up by the group running the CI research for competitive advantage group somewhere in the range of 1992 and 1997 at Brighton University in the UK gives an incredible asset to assessing the handiness of carrying out CI. Inside these developed nations, Kaizen has additionally been drawn nearer from a more functional administrative and authoritative point, characterizing the actual term, as philosophy as well as procedure formed into a progression of devices important to kill exercises which do not increase the value of work processes, the purported “muda” in Japanese (Maarof & Mahmud, 2016). The most recently evolution of the Western literature of Kaizen is the possible relationship between the term and the Lean-Six Sigma approach (Suarez et al., 2018).

Kaizen Management in Developing Countries

The way of thinking idea, and apparatuses of Kaizen have been taken on in Japanese firms as well as in numerous global partnerships in the US and Europe. That’s why many examinations note, in both Japan and abroad, authority is the absolute most significant component for fruitful execution of Kaizen (Iwao, 2017). This suggests that it is feasible to apply Kaizen in nations with various socio-cultural setting. However, application should be directed under legitimate authority and with changes that mirror the uniqueness of the designated society.

In introducing Kaizen in Africa, three issues are raised here for the consideration of the intrigued pursuer (Hosono & Shimada, 2020). They are: complementarity with the Western methodology which is all the more as often as possible embraced in Africa, cost viability of taking on Kaizen rather than different strategies, and adaptability of Kaizen to the financial climate of non-industrial nations (Otsuka et al., 2018). In the developing world, there are likewise various endeavors to carry out Kaizen, for instance, in Southeast Asia and India, with a wide scope of results. On the one hand, there are views that question the overall appropriateness of Kaizen to non-industrial nations. They contend that most emerging nations deal with the issues of powerless HR (Ohno et al., 2009). Nonstop improvement requires a consistent augmentation of preparing and ability advancement to the entire labor force. However, in a country with low education, it is hard for firms to carry out such a preparation framework for the whole labor force (Abdallah, 2021).

From the literature review, it can be observed as Kaizen is an approach to deal with consistent improvement. This Japanese word Kaizen itself is utilized by the majority of the organization that took part in dispersing and executing Kaizen exercises. The Kaizen practice makes and enables a cross-functional group to distinguish open doors for development and to accomplish explicit objectives in a restricted time span (Sandner et al., 2020). The Kaizen practice is helpful for exploring main drivers of value issues and making a restorative move each time an issue emerges; thus, more excellent consideration can be accomplished by the implementation of Kaizen approach.

Methodology

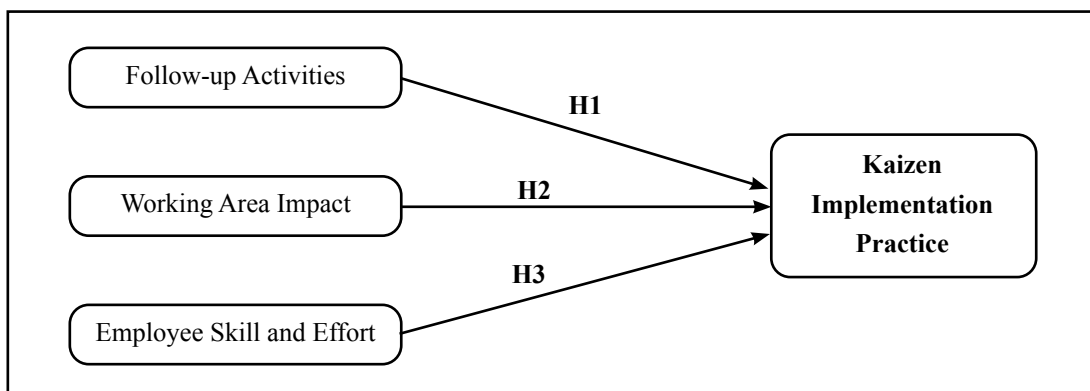
Conceptual Framework and Hypotheses Development

This research focuses on the effect of Kaizen management on Industrial performance at Kathmandu valley. Based on the Japanese management theory (Theory Z) different conceptual models have been formed such as Predictive model of management progress, the schematic model, Japanese PDCA cycle mode, Job characteristics model, and Hamid Kaizen Model. Japanese Management Theory proposes that it leads to refinement in organizational performance that focused and emphasized on expanding representative devotion to the organization by giving a task to existence with a solid spotlight on the prosperity of the worker, both on and off the gig (Prosic, 2011).

Predictive Model of Management Progress which is a regularly utilized measurable procedure to foresee future way of behaving. This model emphasizes on different predictors that is early performance appraisal, early leader-member exchange, and assessed management potential to figure out the career progress of an individual (Anand et al, 2015). Similarly, the Schematic model is ordinarily used in enormous acquaintances with license a predominant understanding of how the possible results will look. This standard is applicable to all types of Kaizen (Beer, 1996). Japanese PDCA cycle model is an improvement cycle based on a logical technique for suggesting an interaction adjustment, carrying out the change, estimating the outcomes, and determining an appropriate step. In addition, it provides a framework and structure for discovering and objectively evaluating improvement possibilities (Leeson, 2017). Likewise, Job Characteristics Model is based on the idea that being erroneous can be a source of inspiration for employees. This model has emphasized on the variables such as core job characteristics, critical psychological states which further results in the personal and work outcome (Lang, 2019). Likewise, Hamid Kaizen Model is another model used in developing the conceptual framework for the study. In this model variable such as Development and Maintenance, Financial and Endowment, Education and Development, Security, Welfare and Community, Women and Family Development, and Youths have been clearly explained with its relationship to strategic management and Kaizen management system (Hamid et al., 2013). Among them variables such as different activities of employees, working environment, and employee's skills and efforts are the most appropriate variables that are to be considered in further study.

Figure 1 explains the role of different variables in response to Kaizen implementation practice. In this framework, Follow-up Activities, Working Area Impact, and Employee Skill and Effort are explained as independent variables and on the other hand Kaizen Implementation Practice is explained as dependent variable.

Figure 1: Conceptual Framework



Source: Modified and adapted from Habidin et al. (2018)

Follow-up Activities and Kaizen Implementation Practice

A follow-up activity refers to the extent to which the system is reviewed and improved on a regular basis to meet the changing environment (Cheser, 1998). It refers to how well Kaizen is rewarded or acknowledged for its contribution to a company and also focuses on work area management and encourages staff to apply their understanding of Kaizen to improve outcomes (Farris et al., 2009). Follow-up activities include the workspace employees to finish the activity that has been given. Singh et al. (2020) opined that successive exercises gave employees the chance to make improvements and modifications, but all changes and advancements should be tied to Kaizen's goals.

H1: There is a significant relationship between Follow-up Activities and Kaizen Implementation Practice.

Working Area Impact and Kaizen Implementation Practice

The amount to which Kaizen efforts have enhanced the performance of the work area is referred to as the Working Area Impact (Garcia et al., 2014). Kaizen activities give impact on the workspace since it helps employees who are working on their functioning region. Overall, it illustrates how Kaizen activities benefit people in the workplace and how Kaizen activities have a good impact on this workplace. A part from that, according to (Farris et al., 2008), Kaizen is a complicated organizational phenomenon that has the power to alter both the system that is, the technical system (work area performance) and social system (participation employees and of work areas employees).

H2: There is a significant relationship between Working Area Impact and Kaizen Implementation Practice.

Employee Skill & Effort and Kaizen Implementation Practice

Employee Skill & Effort refers to how comfortable an employee is working with others to identify areas for growth in the workplace. Employee motivation, satisfaction, training and development, compensation, job security, and organizational structure all have an impact on employee performance (Habidin et al., 2016). Likewise, Marksberry et al. (2010) asserted that employees will further improve and increase their abilities and effort with the support of Kaizen management, which will drive them towards achieving the organization's common goal. Kaizen can improve employee knowledge in managing an organization in a more systematic and successful manner, and it can also serve as a platform for employees to learn about principles, tools, and techniques for continuous improvement (Watson, 2002)

H3: There is a significant relationship between Employee Skill and Effort and Kaizen Implementation Practice.

Variables Table

The variables that are used in the study are already selected and established. Table 2 shows the detail information about the variables that are used for the study.

Table 2: Variable Definition

Variable	Variable ID	Definition	Explanation
Follow-up Activities	FOL1	Regular Reviews & Improvement	The extent to which the training system is reviewed & improved on a regular basis to accommodate changing environment.
	FOL2	Freedom to changes	The extent to which employees in the work area have the freedom to make changes to the work environment.

Variable	Variable ID	Definition	Explanation
Working Area Impact	FOL3*	Contribution	Degree of rewarding or recognizing team members for their contributions.
	FOL4*	Encourage	The extent to which work area management encourages employees to use the Kaizen knowledge & skills.
	FOL5	Product Quality	Improvement in Product Quality.
	WOR1	Performance	The extent to which Kaizen operations have improved this work area's performance.
	WOR2	Helped People	Kaizen activities have helped individuals in the workspace.
	WOR3	Positive Effect	Kaizen activities have positive effect in the work environment.
	WOR4*	Improved Results	Measurement of how much the work environment has improved as a result of Kaizen.
Employee Skill and Effort	WOR5*	Relevant	Kaizen is relevant to this field of work.
	EMP1	Comfort	The extent to which an individual is comfortable collaborating with others to better the work area.
	EMP2	Communicating New Ideas	The degree to which an individual can communicate new ideas regarding improvement to the work environment.
	EMP3*	Participation	Participation in Kaizen management provides new skills and abilities.
	EMP4	Impact	Measure the impact of differences made in the work environment.
Kaizen Implementation Practice	EMP5*	Interest	Implementing Kaizen activities increases the interest in work.
	KAI1	Work Culture	Kaizen is an approach that encourages an entire company to work together to achieve continuous improvement.
	KAI2	Effective Operation	Kaizen is a technique that helps to improve the efficiency of operations.
	KAI3	Support	Top management support the operation of activities.
	KAI4*	Continuous Improvement	Always look for positive improvement in an organization.
	KAI5*	Productive	Kaizen increases the productivity.
	KAI 6*	Work Experience	Enhance work experience.

Note: * items were discarded during data analysis as it does not pass the criteria of factor loading which must be greater than 0.50 during factor analysis.

Study Area, Population and Sample Size

The study area chosen for the study is Kathmandu Valley which comprises of three different districts namely Kathmandu, Lalitpur, and Bhaktapur which is located in province 3 of Nepal (Shrestha et al., 2020). The Kathmandu valley is the focal point of different major enterprises and due to the absence of infrastructural improvement and administrations somewhere else in different parts of the country, the Kathmandu valley has turned into a center for some business and administration exercises (Ishtiaque et al., 2017). Being the capital city of Nepal and one of the main locates which gathers most elevated convergence of populace and community for various significant ventures, conducting research on impact of Kaizen management in industrial estate of Kathmandu Valley would give better and more factual results. All the major industrial estate like Kathmandu industrial estate, Lalitpur industrial estate, and Bhaktapur industrial estate is located in the Kathmandu valley from where the data and information can be easily accessed (Devkota et al., 2022). Apart from that, senior managers working in these industries also possess expertise which will further add value in conducting the research study. The valley has three industrial zones that are located in Balaju, Patan and Bhaktapur. There are 287 operating industries in Kathmandu valley. The study populations chosen for the study are managers of different organizations that are located in the study area which is Industrial estate of Kathmandu valley. There are 35 operating industries in Bhaktapur industrial estate, 118 industries are operating in Lalitpur industrial estate and Balaju industrial estate consists 141 (Rajbhandari et al., 2022).

The following statistical formula is adopted from Taherdoost (2016) to calculate sample size:

$$n = N * X / (X + N - 1)$$

Where, $X = Z\alpha/2 * p * (1-p)/MOE^2$, and $Z\alpha/2$ is the critical value of the traditional distribution $\alpha/2$, MOE is the margin of error, p is the sample portion and N is that the population size. This study also considered non-respondent error of 5%. From the calculation, it is found that the required sample size for the study is 158. However, during the data collecting procedure, all functioning industries from the Bhaktapur Industrial Estate were taken. In addition, those industries from the Balaju Industrial Estate and the Patan Industrial Estate that permit data collection were undertaken for this study. Therefore, our sample includes 35 industries from the Bhaktapur Industrial Estate, 62 businesses from the Balaju Industrial Estate, and 61 industries from the Patan Industrial Estate, respectively.

Research Instrument and Data Collection

The major research instrument in this study was a structured questionnaire with an interview. A research questionnaire is a type of research tool used to collect data from respondents by asking them a series of questions (Farrugia et al., 2010). A structured questionnaire has been developed and devised to conduct survey as well as obtain primary data on Kaizen management practices on industry for data collection. KOBO Toolbox, Microsoft Excel, SPSS and SPSS AMOS were used for data analysis, whereas Microsoft Excel was used for data entry and tabulation. Descriptive statistics are discussed in the first part along with detailed information and socio-demographic information which includes education, family background, and work experience of respondents. The majority of this research is devoted to the second half of the discussion, which presents and discusses the results of Kaizen Implementation Practice variables using inferential statistics.

Result

Socio-Demographic Characteristics

This section contains the socio-demographic characteristics of 155 managers from the industries located at the Industrial estate of Kathmandu valley. It includes gender, education level, birth place of the managers, types of education, and family occupation which is clearly show in table 3.

Table 3: Socio-Demographic Characteristics of Respondents

Demographic Characteristics	Number	Percentage (%)
Gender		
Male	120	78.43
Female	33	21.57
Education Level		
SEE	1	0.65
+2	20	13.07
Bachelor	96	62.75
Master	34	22.22
Above Master	2	1.31
Birth Place		
Urban	123	80.39
Rural	30	19.61
Types of Education		
Management	130	84.97
Humanities & Social Science	18	11.76
Education	2	1.31
Others	2	1.31
Engineering	1	0.65
Family Occupation		
Business	67	43.79
Agriculture	31	20.26
Government Service	31	20.26
Private Company	22	14.83
Others	2	1.31

In this study, 78.43% are male which reflects that in senior or managerial positions majority of the individuals are male dominated. It is observed that almost all the managers working in the industry are graduated, mostly bachelors (62.75%) and master's (22.22%). Only 14% of them are having upto intermediate level of education. Managers are mostly urban born citizen (80.39%) which indicates that most of the managers working in the industries are from management field with having 84.97%, followed by humanities & social science (11.76%), education (1.31%), engineering (0.65%) and others. Study have shown that most of the managers are from management field because it gives managers the abilities and know-how necessary to succeed in leadership roles, run their own businesses, and successfully lead teams, people, and organization (Darmer, 2000). Apart from this study, their family occupation also determines their involvement in business. This study shows 43.79% managers are from business family. However, some manager's family is from agriculture sector (20.26%), government service (20.26%), private company (14.83%) and others (1.31%). Research shows that managers belongs to those family who are from business background, it is because they are grown up with those managerial traits that comes from the family that they are from (McAdam et al., 2020).

General Understanding on Kaizen Management

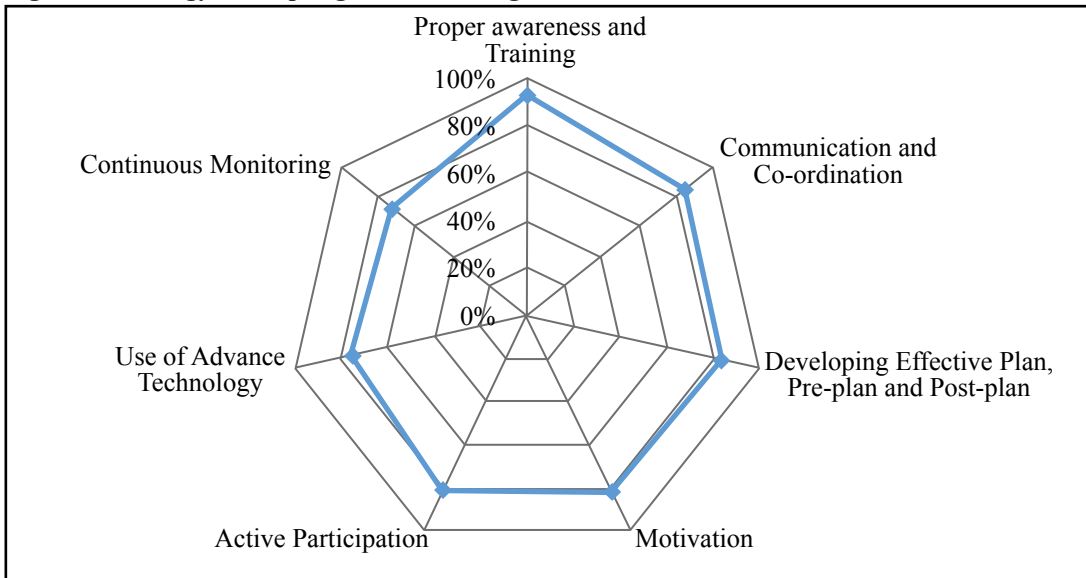
This section presents the general understanding of Kaizen management by the managers of different industries. From the study it shows that industries have good strategy to run their organization. 86.27% of the managers agreeing upon the good strategy formulation in their organization. However, 13.73% industries are yet to implement good strategy in their respective industry. This is because in respective industry there is poor managerial support, employees not responding effectively, poor communication and lack of coordination (Beer et al., 2005; B.K. et al., 2019).

The study also shows that managers have performed different activities in their past 6 months to 1 year of working days where most of the managers believe in team work (96.08%), followed by personal discipline 88.89%. Similarly, they also practice continuous improvement 88.24%, along with improving productivity that is 84.97%, minimizing waste 72.55%, motivating employees 66.67%, improved their morale that is 66.67%, and other activities with 1.31%. The study shows that managers are frequently engaged in all these activities as the numbers of managers following all above activities are 93.46%. On the other hand, managers who occasionally follow these activities are of 5.88%, followed by rarely of 0.65%. The study shows that most of the industry performance has increased with 75.16% of the manager's claims that their industry performance has increased and with having noted that 24.84% of the managers points that their industry performance has not increased. From the study the results has shown that team work has been the major factor behind the increase in the industry performance followed by proper coordination inside the organization, management of resources, proper planning, policy formulation, effective communication, minimizing waste activities, employees motivation, installation of new technologies and focus on creativity. A study conducted by Hanaysha (2016) shows that team work has a positive relationship with organizational performance along with other activities like proper coordination and effective communication.

Challenges and Managerial Solution in Adoption of Kaizen Management Practices

Managers revealed several challenges while implementing the Kaizen Management practice in their industry. Managers opined that the major reason for facing the challenges is due to lack of adequate resources (74.51%), followed by lack of understanding (64.05%), resistance to change (52.21%), inconsistency in efforts (43.14%) and so on. In addition study done by Garcia-Sabater et al (2011) has identified challenges to Kaizen such as resistance to change especially among mature workers.

92.18% of total managers believe that the obstacle of adopting Kaizen management in an industry is manageable and only 7.19% believe that it is not manageable. Top management (85.62%), Owner (84.31%), Department Head (83.66%), and Clerk (80.39%) are responsible for the solution of implementation of Kaizen management in the industry. Likewise, Zailani et al. (2015) opined that every department in an industry is equally responsible in implementation of Kaizen management practice. Figure 2 shows the various strategies that can be adopted while implementing Kaizen management in various industrial estates in Kathmandu valley.

Figure 2: Strategy in adopting Kaizen Management

Source: Field Survey

The majority of the managers agreed that organization should provide relevant training related to the measures of implementing Kaizen management. Proper communication and coordination is the major tools for making individuals relevant to practice of Kaizen management. Similarly, planning, pre-planning and post-planning strategies should be developed beforehand and proper monitoring is also equally important to give the best result. Likewise, employees in an industry should be motivated for the acceptance of Kaizen management and there must be the active participation of every individual for effective implementation of Kaizen management. And at last the use of technology will also benefit an industry in adoption of Kaizen management.

So, in order to have a positive impact of Kaizen management in an industry every manager should be willing to accept this very new concept to improve their overall performance of an industry. From the study itself it has been found that the implication of Kaizen management practice is needed and has even highlighted the importance of Kaizen management practice in an industry but due to some internal constraints such as lack of adequate resources, participation from all the departments, lack of team work and others it has been difficult to implement in an industry. In order to overcome such challenges, managers has pointed out that there must be number of trainings provided to employees, effective coordination and communication, proper planning and pre-planning to implement the practice of Kaizen management in an industry. Similar research has been conducted by Al-Hyari et al., (2019), where the research has highlighted the similar factors which lead to effective implication of Kaizen management in an industry.

Inferential Analysis

This section covers Descriptive Statistics, Explanatory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Measurement Model, Path Analysis, and Hypothesis Testing in the context of research data analysis.

Descriptive Summary Statistics

The mean, standard deviation, skewness, and kurtosis were all used to summarize the data. The responses' mean and standard deviation are 3.6842 to 4.3487 and 0.50714 to 0.80647 respectively, showing that the bulk of the standard deviations values are low, indicating that the majority of the

responses do not deviate considerably from the mean data. Skewness is a feature that reveals the symmetry of a random variable's probability distributions (Louzada et al., 2017). The data in this study has a negative skewness i.e. the left side of the distribution has a larger tail ranging from -1 to +1. Kurtosis measurements are in the range of -1 to +1, suggesting that the data is normal and is often acceptable.

Exploratory Factor Analysis (EFA)

While performing EFA, the applicability of the data should be checked using KMO and Bartlett's test before evaluating it. The KMO value in our study is 0.846, which meets the 0.70 minimum requirements. Similarly, the data is significant since the Bartlett's Test result is 0.00, which is less than 0.05, suggesting that there is no problem with data dependability and validity as well as it indicates that the data is significant (Lee et al., 2021; Watkins, 2018). Likewise, Herman's single facto test is used to determine if the study exhibits common method bias (Alawan et al., 2017). When analyzing the results of an EFA study, Herman's single-factor test is used to see if the first extracted components explain more than 50% of the variation (Hair Jr et al., 2020). Our data set has no difficulties with Common Method Bias because the variation explained by single components is 43.110%, which is less than 50%.

Confirmatory Factor Analysis (CFA)

To assess assessment reliability and validity, we used confirmatory factor analysis (CFA) (Pan et al., 2021). The fitness indicators CMN/DF, RMR, RMSEA, GFL, IFT, TLI, and CFI are used to assess if the model fit is acceptable or not. The model fit for this study is exceptional since all of the indicators meet the requirements of CMINDF ($1.605 < 5$), RMR ($0.026 < 0.08$), GFI ($0.921 > 0.80$), CFI ($0.966 > 0.90$), TLI ($0.953 > 0.90$), TFI ($0.966 > 0.90$), RMSEA ($0.063 < 0.08$). Similar study was carried out by Habidin et al. (2018), they found that their overall fit statistics of the CFA are CINDF =2; CFI = 0.980; RMSEA = 0.060. It proves that our model is more reliable and has better validity.

Measurement Model (Validity of Data)

Convergence validity and discriminant validity are used to establish the data's reliability and validity (Donkor et al., 2021). The data set must meet two conditions in order to be verified. $AVE > 0.5$ (Amatya et al., 2023 & Chandra & Kumar, 2021), $CR > 0.7$ (Basnet et al., 2024 & Shrestha, 2021), $CR > AVE$ are the requirements for convergent validity, whereas $AVE > MSV$, $AVE > ASV$, and $AVE > r$ are the requirements for discriminant validity (see table 4) (Maharjan et al., 2022). If the above conditions meet we may conclude that there are no worries about validity and that all indicators accurately represent the construct to which they belong. Table 5 shows the inter-correlation matrix between variables.

Table 4: Reliability and Validity

Constructs	Indicators	Factor Loading	Cronbach's Alpha	CR	AVE	MSV
Follow Up Activities	FOL 1	0.774	0.82	0.821	0.605	0.423
	FOL 2	0.77				
	FOL 5	0.711				
Working Area Impact	WOR 1	0.834	0.896	0.897	0.744	0.423
	WOR 2	0.794				
	WOR 3	0.808				
Employee Skill & Efforts	EMP 1	0.757	0.773	0.8	0.574	0.328
	EMP 2	0.8				
	EMP 4	0.686				

Constructs	Indicators	Factor Loading	Cronbach's Alpha	CR	AVE	MSV
Kaizen Implementation Practice	KAI 1	0.76	0.75	0.768	0.526	0.328
	KAI 2	0.689				
	KAI 3	0.666				

Source: Field Study

Table 5: Latent Construct Correlation

	KAI	WOR	EMP	FOL
KAI	0.726			
WOR	0.468	0.862		
EMP	0.573	0.432	0.758	
FOL	0.533	0.65	0.468	0.778

Source: Field Study

Test of Hypothesis

Table 6 demonstrates that all of the hypotheses are significant, revealing a substantial association between the variables used to investigate Kaizen management. SEM is used to evaluate regression analysis, variable analysis, and the normalization pattern during the inferential phase of the research. On the basis of latent variables vs. observed variables, the various components were assessed (Figure 3). The model fit demonstrates that it is in excellent shape. The value for CMIN/df is 1.605. A p value of less than 0.05 indicates a substantial relationship between latent and observable variables. A p-value of less than 0.05 indicates that all of the hypotheses in this study are broadly accepted.

Figure 3: Structural Model

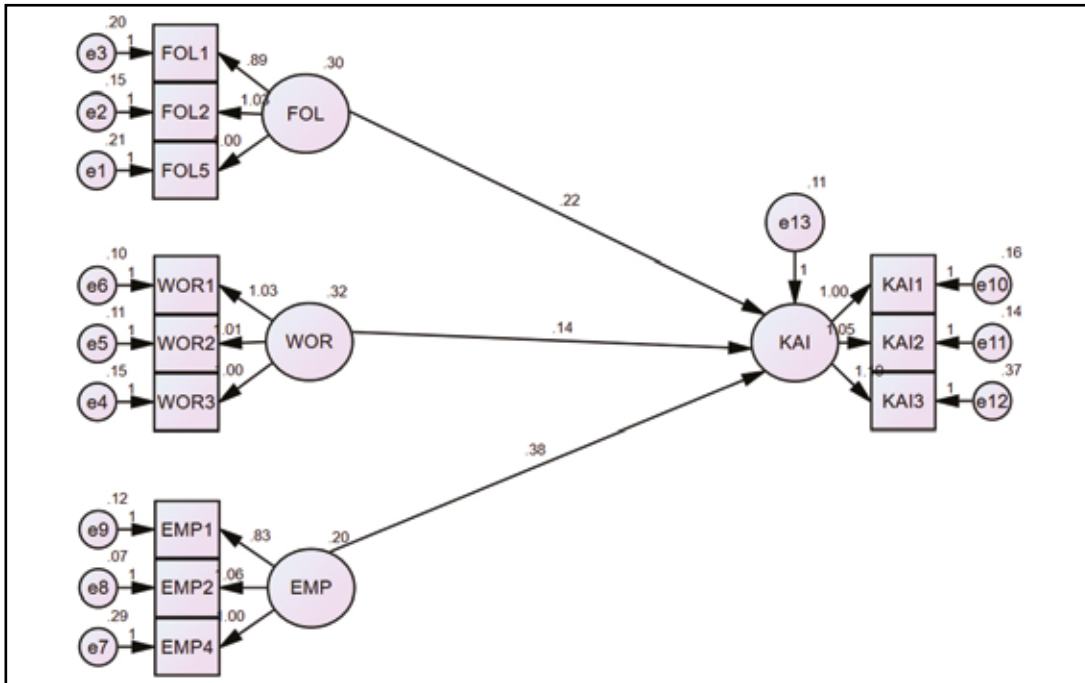


Table 6: Path Estimates for Structural Model

Hypothesis	Estimate	S.E	C.R.	P	Significancy
H1: Kaizen Implementation Practice → Follow Up Activities	.219	.073	2.997	.03	Significant
H2: Kaizen Implementation Practice → Working Area Impact	.145	.065	2.233	.026	Significant
H3: Kaizen Implementation Practice → Employee Skill & Efforts	.383	.098	3.890	***	Significant

Discussion

This study explains the effect of Kaizen management on industrial performance at Kathmandu valley using three different constructs that is follow-up activities, working area impact and employee skill & efforts. This research has been conducted to identify the major factors behind the implementation of Kaizen management in industrial sector of Kathmandu valley, challenges behind the implementation of Kaizen management. In this study, the reliability test and multiple linear correlations were used to establish and test the relationship between the variables. The supported hypothesis 1, 2 and 3 states that Follow-up Activities, Working Area Impact and Employee Skills & Efforts affects industrial performance. These three hypotheses provide similar result to that observed by Habidin et al. (2018).

H1 states follow-up activities have a significant positive influence on Kaizen management practice. Boca (2011) highlights Kaizen as the best methods of performance improvement within the industry since the implementation costs were minimal. The manager-employee relationship is crucial since an industry's results are the result of the individual efforts of each person, and the Kaizen approach substantially increases this relationship. Thus, manager-employee relationship is the key to industry productivity which highlights the importance of team work in an industry. Apart from that, managers also seem equally participative in following up the activities performed in an industry with the Kaizen philosophy. This study also highlighted the relationship between working area impact and Kaizen implementation practice. Chiarini (2012) identified factors like style of management, system deployment, managing employee, customer needs, IT tools and technologies, stabilizing system in their study and demonstrated how the use of Kaizen management improves working conditions. Additionally, managers assert that using a Kaizen management strategy does encourage collaboration within a company, improve working conditions, and enhance productivity.

Hypothesis 3 shows significant relationship between employee skill and efforts and Kaizen implementation practice. It means that with the help of Kaizen management practice employees are able to work together as a team, contribute their effectiveness in workforce development and also communicate effectively with each other in organizational premises. Many studies have claimed that Kaizen management practice has resulted in the development of employee skills and efforts in an organization/ industry. It further enhances the overall development of workers skills which further helps them to be more creative and effective. Therefore, Japanese management theory places a strong emphasis on increasing employee loyalty to the company by offering tasks that have a clear focus on the success of the employee both on and off the job since it is hypothesized that this would improve organizational performance. In the study of Kaizen management, the variables: follow-up activities, working area impact, employee skill and effort, and Kaizen implementation practice are tested on the basis of theory Z, which supports the results and demonstrates the structural relationship between them. The adoption of Kaizen management in Nepalese industrial estates may thus be explained using Japanese management philosophy.

This paper has been written after reviewing a sizable number of publications and studies on Kaizen. As a result of this research, a tentative nomenclature of Kaizen was created, which may be useful for managers or executives who are introducing or expanding Kaizen inside their organizations. The study implies that in order to successfully adopt Kaizen, a business must create a culture that values innovation and constantly strives to improve. In order to boost the success rate of Kaizen implementation, psychological, contextual, and philosophical concerns must be addressed and clarified. Advanced methodologies, continuous training as well as emotional intelligence should all be the foundation for Kaizen implementations. However, standard operating procedures may have little impact on gathering proposals for improvement. Therefore, Kaizen is the finest method for promoting long-term, process-oriented reforms. This study highlights a new concept that has not yet been explored in detail in Nepal and it will therefore provide Nepalese perspectives on the concept of Kaizen Management. For various decision-makers and stakeholders, this study offers a useful viewpoint on Kaizen Management and how it is implemented. Likewise, this research provides guidelines, reinforcement and benefit regarding literature review for future researchers as it opens researches avenues regarding Kaizen Management. Accordingly, this paper will be benefited to modern areas, workers of ventures, different government areas, organizations associated with industry and other related with industry administrations.

This study provides insight on effect of Kaizen Management on Industrial Performance generalizing different factors affecting Kaizen management on Industrial performance in Kathmandu Valley. It helps to identify determinants of industries intention to implementing Kaizen management concept in particular industries on Kathmandu Valley. Moreover, the study will help to analyze the challenges for effective implementation of Kaizen management and recommend managerial solutions for the effective implementation of Kaizen management. The findings of the study will be particularly helpful to business owner, e-commerce, corporate houses, government organization and NGOs and INGOs by allowing them to understand the concept of Kaizen management its benefit and result in implementing this novel concept. Also, this study will be beneficial to future researchers as this study will support them to carry their study further providing guidelines and insights on various literatures related to the study.

This study emphasis on improvement of Industrial performance through effective implementation of Kaizen Management practices of industries presented in the Kathmandu Valley. This study has covered few areas in context to practice of Kaizen Management but it has several limitations that could be serve as an avenue for further studies. First this study was conducted with only 157 managers of the industries. So, the findings of this study cannot be generalized all over Nepal due to varying manager's psychology and industrial practice of management culture in different industries of Nepal. The further study should try to cater other Industrial sector of Nepal too so that it can generate more clear picture about the management practices in different industrial estate of Nepal. Furthermore, because of the level of education and culture, the results of this study cannot be applied to other countries therefore; caution should be exercised when interpreting the findings of this study.

Conclusion

The conclusion drawn from the study is that most of the Industries of Kathmandu Valley do practice the methods of Kaizen Management but they are not aware that the strategies and procedures that they have been using are related to the concept of Kaizen Management. However, there are still a cluster of industries who do not implement the concept of Kaizen Management at all in their respective industries. Hence there is a huge possibility that if the managers of the particular industries are aware about the impact and result of Kaizen Management practice in their organization, they are willing to adopt this concept in order to improve their performance and increase productivity.

The empirical research work has shed light on how managers embrace Kaizen Management practices against the backdrop of developing economy like Nepal. Concerns concerning the necessity of putting

the Kaizen Management concept into practice and employee's feelings about this novel management approach have been emphasized by this study. Data was collected from 155 managers of different industries and primary data was collected through interview with the help of structured questionnaire. Additionally in order to scrutinize and analyze the study data in detail different analytical methods were used namely descriptive and inferential analysis using Structures Equation Model (SEM) was used.

Managers who were at the higher position were from management field, having a good experience in their relative industrial sector and claims that their organization practice good strategy formulation. Similarly, their industries nature is of manufacturing and of medium scale, some of them were from large scale industries too. Different activities have been implemented by the managers which include teamwork, continuous improvement, personal discipline, improved productivity, waste elimination, motivated employees and improve morale. Lack of adequate resources, lack of understanding, resistance to change, inconsistency in efforts, time constraints, poor employee participation and lack of commitment are major problems for implementing Kaizen management in industrial estates. In order to overcome the mentioned challenges, managers have pointed out the different solutions which includes proper awareness and training, continuous monitoring, communication and coordination, use of advanced technology, motivation, developing effective plan, pre-plan and post plans. Implementing these solutions will help industries to achieve higher productivity. The studies finding indicates that there are several factors defining Kaizen Management practice, out of which respondents highlighted the importance of team work, effective communication, proper organizational strategies, policies and rules because all these factors plays an important role in organizational effectiveness. All the variables used in this study such as follow-up activities, working area impact and employees skills and efforts are significant and therefore, it has positive impact on Kaizen Implementation Practice.

References

- Abdallah, A. A. (2021). Effective implementation of Japanese quality methods during health pandemics. *Business Process Management Journal*.
- Akdeniz, C. (2017). Kaizen philosophy explained. *Psychoneuroendocrinology*, 76(3), 49-56.
- Al-Hyari, K. A., Zaid, M. K. A., Arabeyyat, O. S., Al-Qwasmeh, L., & Haffar, M. (2019). The applications of Kaizen methods in project settings: applied study in Jordan. *The TQM Journal*, 31(5), 831-849.
- Amatya, S., Basyal, D. K., Lawaju, P., Paudel, U. R., & Bhandari, A. (2023). Key Factors Influencing Adoption of Online Dispute Resolution in Banking Sector: An Empirical Analysis. *Journal of Business and Management*, 7(02), 104-124.
- Anand, A., Kant, R., Patel, D. P., & Singh, M. D. (2015). Knowledge management implementation: A predictive model using an analytical hierarchical process. *Journal of the Knowledge Economy*, 6(1), 48-71.
- Anwer, J. K. (2017). *Integration of lean method in English language teaching and learning: A new perspective for elt methodology* (Master's thesis, Eğitim Bilimleri Enstitüsü).
- Basnet, A., Basyal, D. K., Thakur, A., Lawaju, P., Devkota, N., Devkota, J., & Paudel, U. R. (2024). Green Marketing and its Impact on Consumer Buying Behavior in Kathmandu Valley. *Quest Journal of Management and Social Sciences*, 6(1), 100-117.
- Basu, D., & Miroshnik, V. (2021). Japanese Management System. *Ethics, Morality and Business: The Development of Modern Economic Systems*, 2, 139-171. Palgrave Macmillan, Cham.
- Beer, M., Voelpel, S. C., Leibold, M., & Tekie, E. B. (2005). Strategic management as organizational learning: Developing fit and alignment through a disciplined process. *Long range planning*, 38(5), 445-465.
- Berhe, H. H. (2021). Application of Kaizen philosophy for enhancing manufacturing industries' performance: exploratory study of Ethiopian chemical industries. *International Journal of Quality & Reliability Management*.

- B.K., A., Devkota, N., Gautam, N., Paija, N. (2019). Industry willingness to pay for adequate electricity supply: A discourse on sustainable industrial development. *Quest Journal of Management and Social Sciences*, 1(2), 251-259.
- Boca, G. D. (2011). Kaizen method in production management. *International Scientific Conference Young Scientists*, 3(3), 45-63.
- Bwemelo, G. S. (2016). Improving public service delivery in tanzania through kaizen: a review of empirical evidence. *Business Education Journal*, 2(1), 1-15.
- Carnerud, D., Jaca, C., & Bäckström, I. (2018). Kaizen and continuous improvement—trends and patterns over 30 years. *The TQM Journal*, 30(4), 371-390.
- Chandra, D., & Kumar, D. (2021). Evaluating the effect of key performance indicators
- Cheser, R. N. (1998). The effect of Japanese Kaizen on employee motivation in US manufacturing. *The International Journal of Organizational Analysis*, 5(7), 245-268.
- Chiarini, A. (2011). Japanese total quality control, TQM, Deming's system of profound knowledge, BPR, Lean and Six Sigma: Comparison and discussion. *International journal of lean six sigma*.
- Cokins, G. (2017). *Strategic Business Management: From planning to performance*. John Wiley & Sons.
- Cooper, R., & Slagmulder, R. (2017). *Supply chain development for the lean enterprise: Interorganizational Cost Management*. Routledge.
- Darmer, P. (2000). The subjectivity of management. *Journal of organizational change management*, 2(5), 136-148.
- Shrestha, S., Devkota, N., Paudel, U., Bhandari, U., & Parajuli, S. (2020). Bankers' Communication Know-how: An Analysis from Commercial Banks of Kathmandu valley. *Quest Journal of Management and Social Sciences*, 2(1), 80-99.
- Devkota, N., K, A. B., Paija, N., Paudel, U. R., & Bhandari, U. (2022). Mapping the industries' willingness to pay for unrestricted electricity supply. *Environment, Development and Sustainability*, 24(1), 666-682.
- Farris, J. A., Van Aken, E. M., Doolen, T. L., & Worley, J. (2008). Learning from less successful Kaizen events: A case study. *Engineering management journal*, 20(3), 10-20.
- Farris, J. A., Van Aken, E. M., Doolen, T. L., & Worley, J. (2009). Critical success factors for human resource outcomes in Kaizen events: An empirical study. *International Journal of Production Economics*, 117(1), 42-65.
- Farrugia, P., Petrisor, B. A., Farrokhyar, F., & Bhandari, M. (2010). Research questions, hypotheses and objectives. *Canadian Journal of Surgery*, 53(4), 278.
- García, J. L., Maldonado, A. A., Alvarado, A., & Rivera, D. G. (2014). Human critical success factors for kaizen and its impacts in industrial performance. *The International Journal of Advanced Manufacturing Technology*, 70(9), 2187-2198.
- Garcia-Sabater, J. J., & Marin-Garcia, J. A. (2011). Can we still talk about continuous improvement? Rethinking enablers and inhibitors for successful implementation. *International Journal of Technology Management*, 55(1/2), 28-42.
- George, M., Tung, V. N. D., Truc, L. P. T., Ngoc, N. M., & Nhi, L. K. Y. (2022). Kaizen Applications in Fashion and Textile Industries. In *Lean Supply Chain Management in Fashion and Textile Industry* (pp. 145-175). Springer, Singapore.
- Georgise, F. B., & Mindaye, A. T. (2020). Kaizen implementation in industries of Southern Ethiopia: Challenges and feasibility. *Cogent Engineering*, 7(1), 1823157.
- Habidin, N. F., Hassan, H., Hashim, S., Ong, S. Y. Y., & Fuzi, N. M. (2016). The Relationship between Kaizen Event and Operational Performance in Malaysian Automotive SMEs. *International Journal of Academic Research in Business and Social Sciences*, 6(12), 504-517.
- Hair Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101-110.

- Hamid, A. (2019). Relationship between strategic management (sm) and kaizen management system (kms) in *Mosque Management*, 3(1), 121-136.
- Hanaysha, J. (2016). Examining the effects of employee empowerment, teamwork, and employee training on organizational commitment. *Procedia-social and Behavioral Sciences*, 229, 298-306.
- Helmold, M. (2020). *Lean Management and Kaizen*. Springer international publishing.
- Hosono, A., Page, J., & Shimada, G. (2020). Workers, managers, Productivity: Kaizen in Developing Countries, *Journal of Behavioral Science*, 2(1), (p. 327).
- Ibidapo, T. A. (2022). Quality Management Trends. In *From Industry 4.0 to Quality 4.0* (pp. 77-115). Springer, Cha
- Ishtiaque, A., Shrestha, M., & Chhetri, N. (2017). Rapid urban growth in the Kathmandu Valley, Nepal: Monitoring land use land cover dynamics of a himalayan city with landsat imageries. *Environments*, 4(4), 72-85.
- Iwao, S. (2017). Revisiting the existing notion of continuous improvement (Kaizen): literature review and field research of Toyota from a perspective of innovation. *Evolutionary and institutional economics review*, 14(1), 29-59.
- Kerschner, C., & Ehlers, M. H. (2016). A framework of attitudes towards technology in theory and practice. *Ecological Economics*, 126, 139-151.
- Lang, P. J. (2019). The cognitive psychophysiology of emotion: Fear and anxiety. In *Anxiety and the Anxiety Disorders* (pp. 131-170).
- Leeson, R. (2017). What Is 'Hayek'? In *Hayek: A Collaborative Biography* (pp. 1-61). Palgrave Macmillan, Cham.
- Lev, B. (2004). Sharpening the intangibles edge. *Harvard Business Review*, 6(3), 109-116.
- Louzada, F., Ara, A., & Fernandes, G. (2017). The bivariate alpha-skew-normal distribution. *Communications in Statistics-Theory and Methods*, 46(14), 7147-7156.
- Maarof, M. G., & Mahmud, F. (2016). A review of contributing factors and challenges in implementing kaizen in small and medium enterprises. *Procedia Economics and Finance*, 35, 522-531.
- Magableh, A. N., & Al-Tarawneh, J. T. (2021). The Effect of Information Systems for Human Resources on the Capability of Individual Innovation in Jordanian Companies: A Conceptual Review. *The Big Data-Driven Digital Economy: Artificial and Computational Intelligence*, 393-413.
- Maharjan, P., Devkota, N., Mahapatra, S., Padda, I. U. H., Dhakal, K., Mahato, S., & Bhattarai, U. (2022). FinTech Adoption among Online Grocery Buyers during COVID-19 Lockdowns in Nepal. *Journal of Private Enterprise*, 37(Summer 2022), 57-89.
- Mani, S., Singh, J., & Singh, H. (2009). *Kaizen Philosophy: A Review of Literature Kaizen Philosophy: A Review of Literature*. <http://afr.kaizen.com>;
- Marksberry, P., Badurdeen, F., Gregory, B., & Kreaflle, K. (2010). Management directed kaizen: Toyota's Jishuken process for management development. *Journal of Manufacturing Technology Management*, 2(5), 326-340.
- McAdam, M., Clinton, E., & Dibrell, C. (2020). Navigation of the paradoxical landscape of the family business. *International Small Business Journal*, 38(3), 139-153
- Miyazaki, S., Imai, T., Igo, Y., & Otsuka, K. (1986). Effect of cyclic deformation on the pseudoelasticity characteristics of Ti-Ni alloys. *Metallurgical Transactions A*, 17(1), 115-120.
- Siew Mui, K., Muthuveloo, R., & Chan, J. I. L. (2022). Antecedents of kaizen culture and its effect on operational performance: perspective of manufacturing companies in Malaysia. *The TQM Journal*, 34(6), 1648-1666.
- Nichols, C. (2020). Nutrition sensitive agriculture: An equity-based analysis from India. *World Development*, 133, 105004.
- Ohno, I., Ohno, K., Uesu, S., Ishiwata, A., Hosono, A., Kikuchi, T., & Uenda, T. (2009, October). Introducing kaizen in Africa. *GRIPS Development Forum* (Vol. 1, No. 1, pp. 1-8).
- Otsuka, K., Jin, K., & Sonobe, T. (2018). *Applying the Kaizen in Africa: A New Avenue for Industrial Development*, 2(6) (26-62).
- Poth, A., Sasabe, S., Mas, A., & Mesquida, A. L. (2019). Lean and agile software process improvement in traditional and agile environments. *Journal of Software: Evolution and Process*, 31(1), e1986.

- Prado-Prado, J. C., García-Arca, J., Fernández-González, A. J., & Mosteiro-Añón, M. (2020). Increasing competitiveness through the implementation of lean management in healthcare. *International Journal of Environmental Research and Public Health*, 17(14), 4981.
- Prošić, S. (2011, June). Kaizen management philosophy. In *International Symposium Engineering Management and Competitiveness*, 4(3), (24-25).
- Rajbhandari, S., Devkota, N., Khanal, G., Mahato, S., & Paudel, U. R. (2022). Assessing the industrial readiness for adoption of industry 4.0 in Nepal: A structural equation model analysis. *Heliyon*, 8(2), 1-11.
- Sandner, K., Sieber, S., Tellermann, M., & Walthes, F. (2020). A Lean Six Sigma framework for the insurance industry: Insights and lessons learned from a case study. *Journal of Business Economics*, 90(5), 845-878.
- Schwämmle, A. (2022). Implementation of a Kaizen Organization in an Existing Retail Warehouse. In *Project Management in Logistics and Supply Chain Management: Practical Guide With Examples From Industry, Trade and Services* (pp. 311-322). Wiesbaden: Springer Fachmedien Wiesbaden.
- Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American Journal of Applied Mathematics and Statistics*, 9(1), 4-11.
- Singh, G., Dhanny, H. S., Garg, V., & Sharma, S. (2021). HR Acumen in Industry 4.0: Managing Talent and Achieving Balance in Life. In *Financial Intelligence in Human Resources Management* (pp. 1-20). Apple Academic Press.
- Singh, J., Singh, H., & Kumar, A. (2020). Impact of lean practices on organizational sustainability through green supply chain management—an empirical investigation. *International Journal of Lean Six Sigma*, 11(6), 1035-1068.
- Suárez Barraza, M. F., Ramis Pujol, J., & Kerbache, L. (2011). Thoughts on kaizen and its evolution: Three different perspectives and guiding principles. *International Journal of Lean Six Sigma*, 3(2), 138-143.
- Taherdoost, H. (2016). Sampling Methods in Research Methodology; How to Choose a Sampling Technique for Research. *International Journal of Academic Research in Management (IJARM)*, 5(2), 18–27.
- Watson, L. (2002). Striving for continuous improvement with fewer resources. *Kaizen, Marshall Star*, 3(1), 1-5.
- 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.
- Zi, Y., & Linke, A. (2021). Values gaps affecting human resources management relations between expats and locals: The case of a Chinese manufacturer in South Africa. *Africa Journal of Management*, 7(2), 216-239.