

## Influence of Development of Human Capital Competencies on Crises Preparedness in Manufacturing Firms within the Kenya Association of Manufacturers

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### Abstract

*To survive and thrive in a dynamic and complex competitive environment riddled with crises, manufacturing firms need to enhance their crises preparedness. The purpose of this study was to examine the influence of development of human capital competencies on crises preparedness in manufacturing firms within the Kenya Association of Manufacturers (KAM). The research adopted the positivism approach as the research philosophy and utilized descriptive correlational research design. The study population consisted of 783 chief executive officers from the KAM where a sample of 292 was drawn using stratified random sampling technique. Data was collected through self-administered questionnaire whereas descriptive and inferential statistical techniques were used to perform data analysis. Descriptive statistics focused on relative frequency distribution, means and standard deviation while inferential statistics included ordinal logistic regression. The study results are presented in form of table and numerical measures with descriptions. The results indicate that development of human capital competencies was a significant predictor of crises preparedness of manufacturing firms ( $\beta = 1.025, p < 0.05$ ). The study concludes that development of human capital competencies is vital for the crises preparedness of the manufacturing firms in Kenya. The study recommends to corporate leaders to continually invest in human capital to create a learning organization in harmony with their companies' purpose, intent, mission and objectives.*

**Key Words:** Crises preparedness, Development of human capital competencies, Kenya Association of Manufacturers.

### Introduction

According to the World Economic Forum (2021), the highest likelihood risks and potential crises of the next ten years are extreme weather, climate action failure, human-led environmental damage, digital power concentration, digital inequality, weapons of mass disruption, livelihood crises, debt crises, cybersecurity, and IT infrastructure breakdown. Besides, Price Waterhouse Coopers (PwC) (2023), reports that 96% of organizations interviewed had experienced disruptions in the past two years while 76% said that the most serious disruption had a medium to high impact on their business operations. Further, PwC Global Crisis Survey (2021), surveying 2,800 business leaders in 73 countries highlights that

Firms with a strategic crises' response plan mobilize more swiftly, stabilize their business operations, and effectively respond to the shockwaves of crises disruption. However, Iordanoglou (2018) identified a gap between required and observed human competencies in the workplace which implies the need for a paradigm shift in development of human capital competencies to prepare future leaders' ability to navigate a complex and an uncertain world. Core competencies are capabilities that serve as a source of competitive advantage for a firm over its rivals (Muzam, 2022). These distinguish a company competitively and are a reflection of its personality in the operating eco-system (Lee, Wu & Jong, 2022). Investment and development of core competencies is therefore critical for the organization as it accumulates and learns how to deploy its varied resources to withstand any foreseeable future crisis, remain competitive, sustainable, and future oriented. The global and resilience survey by PwC (2023) further observes that thriving in permacrises requires senior leadership, executive sponsorship and even more importantly, upskilled teams.

The COVID-19 pandemic was a crisis of high magnitude and its effect on various businesses indicated their lack of preparedness to such crises. The present study was carried out within the manufacturing sector, specifically among manufacturing enterprises affiliated with the Kenya Association of Manufacturers (KAM). The economic survey by the Kenya National Bureau of Statistics (2021) reports that the real value added of the manufacturing sector experienced a contraction of 0.1% in 2020, in contrast to a growth of 2.5% in 2019. This decline was attributed mostly to the lockdowns imposed during the COVID-19 pandemic. In 2020, a significant proportion of manufacturers who were members of KAM experienced a decline in sales turnover, which was attributed to reduced consumer demand during the COVID-19 pandemic. Besides, 45% of these firms encountered significant logistical and cost increase challenges in the supply of raw materials. The aforementioned observations suggest that the manufacturing enterprises affiliated with KAM in Kenya were insufficiently equipped to handle a crisis of the scale and magnitude of the COVID-19 pandemic. This study hence delves into how development of human capital competencies could be applied to ensure crises preparedness in the era of permacrises the world has become.

### **Statement of the Problem**

The COVID-19 pandemic has highlighted a significant deficiency in crisis preparedness within Kenya's manufacturing industry, as evidenced by the fact that 75% of KAM members experienced a decrease in sales turnover in 2020, leading 60% of them to restructure their financial obligations in order to maintain solvency (KAM, 2021). KAM membership constitutes 65% of manufacturing industries in Kenya. The primary objective of KAM is to promote evidence-based policy advocacy aimed at formulating industrial policies that enhance and facilitate the economic growth and development of Kenya. The Association collaborates with the government of Kenya and its affiliated agencies to facilitate a thriving and dynamic manufacturing industry with the objective of achieving a double-digit contribution to the nation's Gross Domestic Product (GDP). The present research investigated the level of preparedness of KAM manufacturing firms in the face of crises, in light of the Association's mandate for its members to make a substantial double-digit contribution (from 7.2% to 20%) to Kenya's GDP. According to Muzam (2022), the development of human capital competencies can enhance the crises preparedness of a firm. The organization's investment and development of core competencies is of utmost importance as it enables the accumulation and acquisition of knowledge on how to effectively utilize its diverse resources to withstand potential future crises. However, Iordanoglou (2018) has identified a discrepancy between the human competencies that are required in the workplace and those

that are actually observed. This suggests that there is a need for a fundamental change in the way that human capital competencies are developed, in order to equip future human talent with the skills necessary to navigate a complex and an uncertain world.

### Study Objective

The objective of this study was to examine how the development of human capital competencies influenced crises preparedness in manufacturing firms within the KAM.

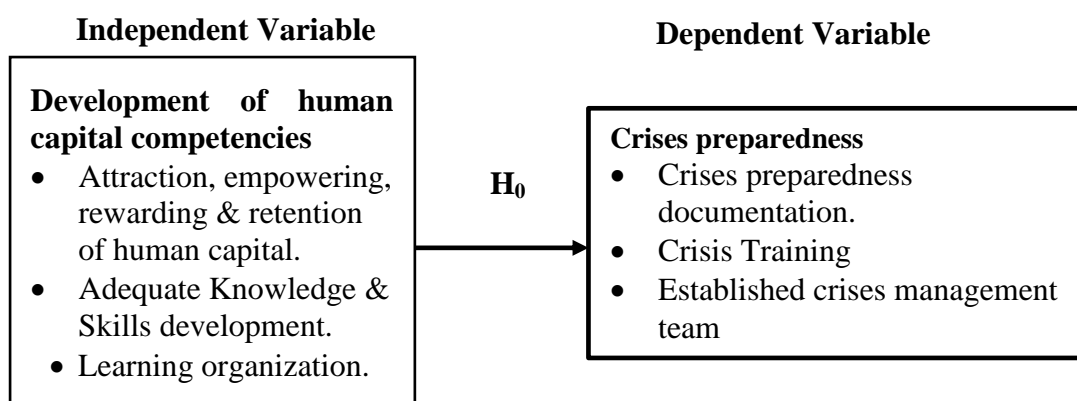
### Literature Review

#### *Theoretical Review*

The strategic leadership model by Ireland and Hitt (2005) anchored this study. The theory suggests that the exercise of strategic leadership enhances the human capital competencies in the firm enabling the firm to appropriately adapt its behaviors as it exploits growth opportunities in its ecosystem. Significant investments are mandatory for the organization to stem full competitive advantages from its human capital in the local and global economy (Lauder, 2015). These investments are critical to strong long-term growth in modern economies that depend on knowledge, skills and information technology. For effective and superior people management the strategic leadership model advocates for firms to put employees at the centre of the firm, the need to shape the future of work, the need to set new paradigms for skills and employees and finally the need to transform the people management function (Staupe-Delgado & Kruke, 2018). This not only enables the firm to compete, it makes it more agile in dealing with complexities, dynamisms and crises emanating from the environment. The strategic leadership theory of Ireland and Hitt (2005), therefore, links development of human capital to crises preparedness in firms.

#### *Conceptual Framework*

Figure 1 depicts the conceptual framework that served as the research's compass and suggests a linear link between development of human capital competencies on crises preparedness.



*Figure 1: Conceptual Framework*

This study examined how the human capital development sub-constructs of the attraction, empowering, rewarding and retention of human capital; the adequacy of knowledge and skills development; and extent of learning organization influence crises preparedness within manufacturing firms of the KAM. Human capital competencies refer to the knowledge and skills of a firm's entire workforce. From the perspective of human capital, employees are

viewed as a capital resource requiring continuous investment (Hitt et al., 2016). Ivanova and Zaretsky (2019) support the argument that the human capital is the most important resource in a firm and is likely to contribute to its competitive advantage. Even with highly driven information technology firms, the most valuable and central asset remains the human talent (Russ, 2021). Effective staff development and training programs increase the likelihood of developing some of the firm's human capital into strategic leaders (Hitt et al., 2016). Human capital could thus be an important building block for a firm's crises preparedness. Crises preparedness was the dependent variable in the study which is about the survival and future of the firm. This is measured through crises preparedness documentation, crisis training and establishment of crises management teams.

Based on this conceptual framework, the following null hypothesis was tested:

**H<sub>0</sub>:** The development of human capital competencies has no statistically significant influence on crises preparedness in manufacturing firms within the KAM.

### ***Empirical Review***

Companies with well-established human capital governance frameworks are considered better investments, capable of creating more long-term value and better placed to deal with uncertainties in the environment (Madgavker, 2022). A study conducted by Ulrich, Kryscynski, Ulrich and Brockbank (2017) from 32,000 global respondents in 1200 businesses confirmed this. The researchers had a desire to see which of the nine human resource competence domains had the most impact on business performance. The findings determined that development of human capital competencies had a strong relationship with business performance, organization agility, profitability, labor productivity, development of new products, customer satisfaction, attraction of new employees, and regulatory compliance. Another study in Malaysian hospitals found that human capital and talent management mindset had significant relationships with sustainable business performance of hospitals in the country (AlQershi, Thurasamy, Al-Rejal, Al-Ganad, & Frhan, 2021).

Gallardo-Gallardo and Thunnissen (2019) found that strong focus on talent management in large multinational firms is associated with the need to have leaders who can navigate firms effectively in the complex operating environment riddled with crises. Tupper and Ellis (2022) on a study in the US found that firm efforts should be refocused on retention, training and development to enable managers to drive performance and affect change needed to assure the firm's survival, performance and growth. Another study Alketbi, Jimber del Rio, and Fernandez (2022) on UAE public entities analyzed how training, and leadership impacted the efficiency of crisis management during the COVID-19 pandemic. Training was showed to be the best factor in enabling crises management within the public entities. Besides, a study in clinical hospitals in Poland by Goniewicz et al. (2021) found that training was associated with the capacity to manage casualty incidents and disasters.

### **Methodology**

This study examined how development of human capital competencies influences crises preparedness and was therefore aligned to the positivism research philosophy approach on how specific causes explain outcomes. The study used descriptive design in which it attempted to understand how the constructs of development of human capital competencies variable produce changes on the constructs of crises preparedness variable and essentially try to explain the causal relationships amongst these variables (Okello, 2022). The population for

this study comprised 783 manufacturing firm leaders within the KAM that were broken down into 13 sub-sectors (KAM, 2021). This study employed the stratified random sampling method to select 292 CEOs from each of the 13 sub sectors proportionately. The sample size for the study was computed from the sample size formula provided by Yamane (1967).

A structured self-administered electronic questionnaire via survey monkey tool was preferred for the reasons enumerated by Cooper et al. (2018) of efficiency, and capacity to cover a big population. Before using it in data collection, the reliability and validity of the research instrument was confirmed through a pilot study that was undertaken with 29 respondents. The data gathered was analyzed using descriptive as well as inferential analysis techniques. Descriptive analysis entailed calculation of means and standard deviations to show the extent of development of human capital competencies and crises preparedness in the manufacturing companies. Inferential statistics included the ordinal logistic regression which was used to test the study hypothesis.

## Results

A questionnaire was administered to 292 CEOs of manufacturing companies who were affiliated with the KAM. Of those surveyed, 269 provided responses, resulting in a response rate of 90.4%. The study's sample predominantly comprised of males, accounting for 59.2% of the participants. With respect to age, the survey results indicate that 37.5% of the participants fell within the age range of 40 to 49 years. In addition, majority of the participants in the study (59.8%), held a bachelor's degree. The results of the study indicate that 38.6% had been employed by the manufacturing firms for a duration ranging from 4 to 7 years. Moreover, 44.7% of the firms had a workforce ranging from 51 to 100 employees. The study encompassed all 13 subsectors, with 25.4% of participants reporting their affiliation with the food and beverage industry.

### *Descriptive Statistics for Development of Human Capital Competencies*

The study sought to measure the development of human capital competencies in the manufacturing companies by providing various statements that respondents were required to consider. Respondents were requested to indicate the extent of their agreement to the provided statements on a scale of 1 to 5 (Strongly disagree to strongly agree). The responses were analyzed by the researcher using means (M) and standard deviations (SD). Table 1 summarizes the findings.

***Table 1. Descriptive Statistics for Development of Human Capital Competencies***

<b>Statements on Development of Human Capital Competencies</b>	<b>M</b>	<b>SD</b>
The human capital resource attraction and retention is in line with my company's purpose/vision, mission and objectives	4.17	.719
The human capital resource empowering is in line with my company's purpose/vision, mission and objectives	4.10	.714
Development of the human capital knowledge and skills is in line with my company's purpose/vision, mission and objectives	4.15	.758
Knowledge is actively shared and transferred within my company employees	4.27	.761
Investment in human capital to create a learning organization is in harmony with my company's purpose/vision, mission and objectives	4.12	.725

<b>Statements on Development of Human Capital Competencies</b>	<b>M</b>	<b>SD</b>
My company continues to develop organizational change management skills in line with the company's purpose/vision, mission and objectives	4.02	.692
My company renews its internal organizational skills at all times	3.95	.892

According to the research results provided in Table 1, the study participants either strongly agreed or agreed to the statements on development of human capital competencies since all had mean scores above 3.41. The findings show that respondents strongly agreed that knowledge is actively shared and transferred within their company employees (M = 4.27, SD = 0.761). Findings also show that the respondents agreed that the human capital resource attraction and retention is in line with their company's purpose/vision, mission and objectives (M = 4.17, SD = 0.719). Respondents also agreed to the other statements on development of human capital competencies provided in Table 1. The standard deviations of all the statements were below 1 which is an indication that the various responses converged closely around the means. The findings further indicate that the surveyed manufacturing firms engaged highly in the development of human capital competencies.

#### ***Descriptive Analysis for Crises Preparedness***

Crises preparedness served as the dependent variable in this study, and it was evaluated using statements to provide a thorough analysis of the crises preparedness of the manufacturing firms. Respondents were asked to rate the degree to which their manufacturing firms had engaged in crises preparedness on a scale of 1 to 5 (Very small extent to Very great extent). The responses were analyzed by the researcher using means (M) and standard deviations (SD). The results are captured in Table 2.

***Table 2. Descriptive Statistics for Crises Preparedness***

<b>Statements on crises preparedness</b>	<b>M</b>	<b>SD</b>
My company has clearly defined what a crisis is	3.86	.988
My company proactively identifies and lists the kind & types of crises it is vulnerable to.	3.86	.937
My company recognizes the importance of crises preparedness and its survival into the future	4.05	.823
My company regularly/constantly scans its operating environment for potential crises that would impact it	3.99	.845
Crises preparedness is incorporated in my company's strategic thinking and plans	3.72	.973
My company relies on strong and tested crises preparedness plans to protect the business in a real crisis	3.83	.847
My company has documented its crises preparedness plans	3.62	1.050
My company sees value in crises preparedness training	4.00	.765
My company has a developed crises preparedness training content, schedule and program	3.69	.935
My company has an established crises management response team/s	3.80	.943
My company regularly carries out crises preparedness simulations	3.70	.929
There is clear specification of roles and responsibilities amongst the crises management response team/s in my company	3.82	.988

<b>Statements on crises preparedness</b>	<b>M</b>	<b>SD</b>
Our Crises Management Team meets regularly to update itself with the latest within and without the firm in line with my company's crises preparedness plans	3.63	1.049
My company recognizes obstacles to crises preparedness when these occur	3.74	.952

The study findings in Table 2 show that the study participants indicated that to a great extent, the manufacturing companies recognized the importance of crises preparedness and their survival into the future ( $M = 4.05$ ,  $SD = 0.823$ ). Besides, respondents indicated that to a great extent, the manufacturing firms see value in crises preparedness training ( $M = 4.00$ ,  $SD = 0.765$ ). All other statements regarding crises preparedness had means between 3.41 and 4.20 indicating that they applied to a great extent to the manufacturing firms that were studied. These findings imply that according to the corporate leaders, the manufacturing companies had high levels of crises preparedness.

### **Ordinal Logistic Regression Results**

An ordinal logistic regression model was used to examine the influence of development of human capital competencies on crises preparedness in manufacturing firms within the KAM in Kenya. The dependent variable (crises preparedness) was assessed on an ordinal scale of 1 to 5, hence this model was suitable to test for the research. The researcher performed preliminary tests to assess if the ordinal logistic regression's four assumptions were satisfied before fitting the model. The four assumptions were that there is an ordinal dependent variable, one or more ordinal, continuous, or categorical independent variables, the assumption of proportionate odds, and no multicollinearity. All these assumptions were met. The study, therefore, fitted a proportional odds model to assess the influence of development of human capital competencies on crises preparedness of manufacturing firms who are members of KAM in Kenya. The R-squared findings are shown first in Table 5.

**Table 5. R-Squared for the Model of Development of Human Capital Competencies against Crises Preparedness**

Cox and Snell	.421
Nagelkerke	.443
McFadden	.305

Link function: Logit.

According to the results presented in Table 5, the Nagelkerke R-squared was 0.443, indicating that changes in development of human capital competencies in the manufacturing firms accounted for 44.3% of the variation in crises preparedness of the manufacturing firms. This suggests that other variables outside the scope of the model accounted for 55.7% of the variation in crises preparedness of the manufacturing firms.

The fitted ordinal logistic regression model of development of human capital competencies on crises preparedness is provided in Table 6. The regression coefficients, the significance of development of human capital competencies in predicting crises preparedness of manufacturing firms is provided.

**Table 6. Parameter Estimates for Development of Human Capital Competencies Against Crises Preparedness**

		Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[2]	.675	.702	.926	1	.336	-.700	2.051
	[3]	2.852	.679	17.664	1	.000	1.522	4.182
	[4]	5.107	.732	48.675	1	.000	3.672	6.542
Location	Development of Human Capital Competencies	1.025	.168	37.411	1	.000	.696	1.353

Link function: Logit.

The resulting ordinal regression models are;

$$\text{Logit } P(Y \leq 3) = 2.852 - 1.025X_2$$

$$\text{Logit } P(Y \leq 4) = 5.107 - 1.025X_2$$

Where Y is crises preparedness and  $X_2$  is development of human capital competencies.

The findings provided in Table 6 indicate that development of human capital competencies was a significant predictor of crises preparedness of manufacturing firms ( $\beta = 1.025$ ,  $p < 0.05$ ). These findings indicate that when development of human capital competencies is improved by a unit, there is a predicted change of 1.025 in the likelihood of a manufacturing firm improving its crises preparedness and vice versa. This implies that improvements in development of human capital competencies is likely to significantly improve the crises preparedness of a manufacturing firm. These findings led to rejection of the null hypothesis of the study which was;

$H_0$ : The development of human capital competencies has no statistically significant influence on crises preparedness in manufacturing firms within the KAM in Kenya.

### Discussion of Results

The study findings established that development of human capital competencies had a significant and positive effect on crises preparedness of manufacturing firms ( $\beta = 1.025$ ,  $p < 0.05$ ). The results from the study showed that there is a projected shift of 1.025 in the chance of a manufacturing business increasing its crisis readiness when development of human capital competencies is increased by a unit. These findings concur with the strategic leadership model by according to Dewar et al. (2022) who indicated that the role of a strategic leaders when preparing for crises is to develop the competencies of the workforce of their companies by embracing uncertainty, with the view that fortune favours the bold. These findings are also supported by Poleman and Winston (2021) who established that a company that develops its talent is both tougher and more flexible during a crisis. Other authors with similar sentiments include Alegre, Berbegal-Merabent, Guerrero and Mas-Machica (2018) who indicated that attraction, empowering, rewarding and retention of human capital is an effective tool that underlines the firm's uniqueness and identity. Furthermore, Ivanova and Zaretsky (2019) support the argument that the adequate knowledge and skills development and having a learning organization is the most important resource in a firm and is likely to contribute to its competitive advantage, adaptability and capacity to withstand chaos and crises.

## Conclusions

The study concludes that development of human capital competencies is vital for the crises preparedness of manufacturing firms. This conclusion has the implication that manufacturing companies that have human capital resource attraction and retention in line with the company's purpose, mission and objectives enhances the capacity of the firm to prepare for crises. Besides, the study concludes that manufacturing firms with human capital resource empowering, engagement in development of the human capital knowledge and skills, knowledge sharing and investment in human capital to create a learning organization should all be on harmony with the company's vision, mission and objectives for the company to have high capability for crises preparedness.

## Recommendations and Areas for Further Study

Development of human capital competencies had a significant influence on crises preparedness of manufacturing firms allied to KAM. The research thus recommends to corporate leadership in manufacturing firms to have innovating approaches to attract, develop and retain human capital capabilities to enable them to be in a position to handle crises as when they emerge. Moreover, corporate leaders should attract and retain human capital resource according to their company's purpose, mission and objectives. Additionally, corporate leaders in manufacturing firms should ensure that in their firms, knowledge is actively shared and transferred within the company employees. Further, corporate leaders should continually invest in human capital to create a learning organization in harmony with their companies' purpose, mission and objectives.

The results of this study suggest further research directions. The focus of this research was all sizes of manufacturing firms that are members of KAM in Kenya. Since crises preparedness is a strategic leadership matter that should be taken into consideration by all types of organizations regardless of industry or sector, future studies may look into how development of human capital contributes to crises preparedness in sectors such as ICT, financial services, and health care. Such research would make it easier to extrapolate conclusions to the broader economy. The foundation of this research was manufacturing firms who are members of KAM in Kenya. While manufacturing firms face various challenges due to competition posed by regional and international manufacturers, these enterprises must find a foothold to enhance their preparedness for any foreseeable or unforeseeable crises and explore other factors in the micro and macro environment that can influence their crises preparedness. Future research may thus focus on other factors that can influence crises preparedness in firms such as strategic communication, knowledge management, corporate governance, and strategic planning among others.

## References

- Alegre, I., Berbegal-Mirabent, J., Guerrero, A., & Mas-Machuca, M. (2018). The real mission of the mission statement: A systematic review of the literature. *Journal of Management & Organization*, 24(4), 456-473.
- Alketbi, A. H. S. B., Jimber del Rio, J. A., & Ibáñez Fernández, A. (2022). Exploring the role of human resource development functions on crisis management: The case of Dubai-UAE during Covid-19 crisis. *PLoS one*, 17(3), e0263034.

- AlQershi, N. A., Thurasamy, R., Ali, G. A., Al-Rejal, H. A., Al-Ganad, A., & Frhan, E. (2021). The effect of talent management and human capital on sustainable business performance: an empirical investigation in Malaysian hospitals. *International Journal of Ethics and Systems*, 38(2), 316-337
- Cooper, D., & Schindler, P., & Sharma, J. K. (2018). *Business Research Methods*(12th ed.). McGraw Hill Irwin.
- Gallardo-Gallardo, E., & Thunnissen, M. (2019). Talent management: Disentangling key ideas. *Human Resource Management*, 19(1), 164-178.
- Goniewicz, K., Goniewicz, M., Włoszczak-Szubzda, A., Burkle, F. M., Hertelendy, A. J., Al-Wathinani, A., & Khorram-Manesh, A. (2021). The importance of pre-training gap analyses and the identification of competencies and skill requirements of medical personnel for mass casualty incidents and disaster training. *BMC Public Health*, 21(1), 1-11.
- Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2016). *Strategic management: concepts: competitiveness and globalization*. Cengage Learning.
- Iordanoglou, D. (2018). Future Trends in Leadership Development Practices and the Crucial Leadership Skills. *Journal of Leadership, Accountability & Ethics*, 15(2), 171-188.
- Ireland, R. D., & Hitt, M. A. (2005). Achieving and maintaining strategic competitiveness in the 21st Century: *The role of strategic leadership*. *Academy of Management Executive*, 19(4), 65-77.
- Ivanova, T., & Zaretsky, A. (2019). Increasing role of human capital and evolution of values in digital economy. *Materials Science and Engineering*, 49(7), 120 - 135.
- Kenya Association of Manufacturers (2021). *Navigating COVID-19 for manufacturing firms*. Nairobi: KAM.
- Kenya National Bureau of Statistics (2020). *Economic survey 2020*. Nairobi: KNBS
- Lauder, M. (2016). *It should never happen again: The failure of inquiries and commissions to enhance risk governance*. Routledge
- Lee, C., Wu, C., & Jong, D. (2022). Understanding the Impact of Competitive Advantage and Core Competency on Regional Tourism Revitalization: Empirical Evidence in Taiwan. *Frontiers in psychology*, 13, 922211.
- Madgavker, A. (2022). *A new view of human capital*. Mckinsey Quarterly, 61(1), 45 – 61.
- Muzam, J. (2022). The Challenges of Modern Economy on the Competencies of Knowledge Workers. *Journal of the Knowledge Economy*, 1-37.
- Okello, G. O. (2022). *Simplified Business Statistics Using SPSS*. CRC Press.
- Price Waterhouse Coopers (2021). Global Crisis Survey (2021). Building resilience for the future. [www.pwc.com/gx/en/issues/crisis-solutions/global-crisis-survey](http://www.pwc.com/gx/en/issues/crisis-solutions/global-crisis-survey)

- Price Waterhouse Coopers (2023). Business leaders overestimate preparedness for disruption. <https://www.pwc.com/gx/en/news-room/press-releases/2023/pwc-global-crisis-and-resilience-survey.html>
- Russ, M. (2021). The Individual and the Organizational Model of Quantum Decision-Making and Learning (MQDM&L): An Introduction and the application of the Quadruple Loop Learning. *The Engineering Journal*, 32(3), 99 – 113.
- Staupe-Delgado, R., & Kruke, B. I. (2018). Preparedness: Unpacking and clarifying the concept. *Journal of Contingencies and Crises management*, 26(2), 212–224.
- Tupper, H., & Ellis, S. (2022). It's Time to Reimagine Employee Retention. *Harvard Business Review*, 58(2), 196 – 212.
- Ulrich, D., Kryscynski, D., Brockbank, W., & Ulrich, M. (2017). Victory through organization: Why the war for talent is failing your company and what you can do about it. *Hunan Capital Development*, 38(7), 196 – 207.
- World Economic Forum (2021). Towards a reskilling revolution: industry-led action for the future of work. Geneva: World Economic Forum.
- Yamane, T. (1967). *Statistics: An introductory Analysis* (2nd ed.). Harper and Row.