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Original Article

Organizational Intelligence and Innovation Performance of State Corporation in Kenya

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Abstract

This study sought to examine the impact of organizational intelligence on innovation performance. Dynamic capability theory guided the study. Generally, public institutions enhance innovation performance by leveraging organization intelligence as a distinct capability, positioning them to achieve better performance amidst crises. Explanatory research design was employed to collect data from a target population of 2,506 senior managers from selected state cooperation in Nairobi County, Kenya. A sample of 350 was determined using Yamane's (1967) formula, yielding 317 valid responses. Data was gathered through a structured questionnaire that underwent a pilot test. Both descriptive and inferential statistics were employed for data analysis. The results indicated a strong positive and significant relationship between organizational intelligence and innovation performance [r = 0.666, ρ < 0.01 (ρ = 0.000)]. Furthermore, organizational intelligence had a significant positive impact on innovation success (β = 0.593, ρ < 0.05 (p = 0.000)). The study concludes that innovation performance is influenced by organizational

intelligence. Thus, organizational intelligence equips institutions with strategic insights necessary to innovate under resource-constrained environments.

Keywords: Organizational intelligence; Innovation; Innovation performance; State corporations

Introduction

In today's highly competitive and continuously changing corporate environment, innovation is key to organization success. Organizations must constantly enhance innovation to meet the growing needs of consumers, stakeholders, and the market. Generally, innovation is a strong intangible asset that is hard to imitate within a short time. Firms with innovation ability will respond to challenges more quickly, develop new products and services, and use market opportunities better than non-innovative firms (Hogan & Coote, 2014). Essentially, innovation performance has been considered an intermediate variable between certain business processes and organizational performance. Generally, innovation performance enhances effectiveness within the organization. Hence, innovation performance improves a firm's performance through process-based advantages that, over time, make the firm more efficient (Rubera & Kirca, 2012). However, studies involving innovation performance have been carried out in the financial sector focusing mainly on the services and manufacturing sectors (Agostini and Nosella 2017). At the governmental level, the emphasis is primarily on informing policy decisions about public investment to enable the growth and maintenance of communities. At the industry level the interest is often on comparisons of effectiveness between firms and sectors. At the firm level, measures focus on several dimensions: the impact of innovation on performance; the effectiveness of R&D; New Product Development (NPD); effectiveness of management; the degree to which enablers of innovation are present and hence the future secured. Thus, innovation performance is crucial for achieving competitive advantages in service or management quality, strategy formulation, and creativity (Song, Wei, & Wang, 2015; Ferreira & Franco, 2017; Li, Song, Wang & Li, 2019; Wendra, Sule, Joeliaty & Azis, 2019). Previous studies have shown a positive link between innovation performance and firm performance (Zahra & Das, 1993; Rubera and Kirca, 2012; Calantone et al., 2002; Thornhill, 2006; Theoharakis & Hooley, 2008; Andries & Faems, 2013).

However, Belderbos et al. (2009) highlighted a negative effect of innovation performance on financial performance. The inconsistent findings might be attributed to cultural differences and strategies employed among different organizations.

Organizational intelligence is a continuous cycle of activities that includes perceiving the environment, producing meaning by developing and interpreting perceptions, and using past experiences to assist in taking action (Choo, 1995; Buchko, 2019). According to earlier research, organizational intelligence is a managerial tool that includes a variety of technologies, processes, and applications that are implemented throughout an organization to help managers monitor organizational performance, handle opportunities and challenges, and make better decisions for the organization (Lonnqvist and Pirttimaki, 2006; Watson, 2009; Chen and Siau, 2012). Akgun et al. (2007) distinguish between two categories of organizational intelligence: social/emotional and behavioural. Nonetheless, three methods of organizational intelligence were put out by Kazemi et al. (2012): behaviourist, cognitive, and adaptive. As a result, organizational intelligence is a composite of many elements. Perception, cognition, memory, learning, communication, reasoning, culture, information processing, and behavioral flexibility are all considered components of organizational intelligence (Choo, 1995; McMaster, 1996; Halal, 1997; Erçetin, 2002). Further, Halal (2000) defines organizational intelligence as the capacity of an organization to produce knowledge and use it to strategically adjust to its surroundings. Higher organizational intelligence does not, however, always translate into improved performance. The degree to which organizational intelligence and the environment mesh determines performance. Organizational intelligence is influenced by stakeholder relationships, knowledge management, organizational culture, organizational structure, and strategic processes. Thus, the interactions that make up the organization are the source of organizational intelligence. Therefore, organizational intelligence is the intelligence of the organization as a whole, not just the intelligence of its members taken together. In order to adapt to a changing world, organizations today have sophisticated learning systems made up of educated individuals using intricate information networks. Hence, organizational intelligence consists of more than one cognitive subsystem (Halal, 2006; Bilgen, & Elçi, 2022). Organizational culture (the values and rules that guide actions), stakeholder relations (the amount of information shared among groups), knowledge management (the type and quantity of valid information), strategic processes (the way knowledge is channeled into understanding), and organizational structure (the authority over which decisions are made) make up the subsystems. Previous studies have established that organization intelligence has a significant effect on innovation performance from the perspective of both product and process innovation (Nevis et al., 1995; Glynn, 1996; Teece et al., 1997; Romijn and Albaladejo, 2002; Kiani et al., 2013). Therefore, the study aimed to determine how organization intelligence affected state cooperation innovation performance in Kenya.

Literature Review

Theoretical Foundation

Dynamic Capability Theory

Dynamic Capabilities (DC) theory emerged to address the limitations of the Resource-Based View (RBV), which defines a firm's advantage through its tangible, intangible, and human resources (Barney, 1991). Derived from RBV, DC theory explains how firms achieve sustainable competitive advantage by adapting to dynamic environments through integrating, building, and reconfiguring competencies (Teece, Pisano & Shuen, 1997). This study is grounded in DC theory as an extension of RBV, incorporating absorptive capacity from a knowledge-based perspective.

Dynamic capabilities are essential to recognizing, evaluating, and analyzing new opportunities. According to dynamic capability theory, markets are more dynamic, and firms differ in the capacities they acquire and employ diverse resources. Hence, differences in capability results in discrepancies in inter firm's variation of performance over time (Wang & Kim, 2017). According to Teece, Pisano, & Shuen, (1997), dynamic capability is a higher-order capability for the selection, development, and coordination of ordinary capabilities, which is, sensing, seizing, and transforming (Garrido, Kretschmer, Vasconcellos, & Gonçalo, 2020). These capabilities also allow firms to transform information based on their requirements. It also promotes learning and experimentation, recombines resources for the creation of new goods, and transforms existing systems (Jiang et al., 2018), all of which increase the firm's performance. Hence, a firm with dynamic capability can integrate and redeploy knowledge sources to achieve higher performance. Previous studies accepted that dynamic capability can lead firms to achieve higher performance (Khan et al., 2021; Khan, Khan, Jamil, & Akbar, 2024). The acquiring, assimilation, and development of new knowledge are necessary to upgrade operational capabilities with new knowledge and skills (El Sawy & Pavlou, 2008). In addition, difficulty in understanding the nature of dynamic capabilities (DC) and the absence of clear models to measure these capabilities and how they affect the performance of organizations (Zott, 2003). The theory has also been criticized for being repetitive (Zollo & Winter, 2002) and ineffective in providing a complete answer regarding DCs and they operate (Schreyögg & Kliesch-Eberl, 2007).

Dynamic capabilities theory has also suffered from a lack of clarity about what constitutes its core concepts (Ambrosini & Bowman, 2009). Despite the intense growth of studies discussing the idea of dynamic capabilities (Ambrosini & Bowman, 2009), the progress of the theory still

requires further collective efforts from researchers to illustrate concepts related to the theory and how to link them to empirical practices within organizations (Wang & Ahmed, 2007). Hence, public institutions can enhance innovation performance by leveraging organization intelligence as a distinct capability, which will position them to achieve better performance amidst crises.

Empirical Literature Review and Hypotheses Development

Organizational Intelligence on Innovation Performance

Organizational intelligence consists of the ability to make sense of complex situations and act effectively to interpret and act upon relevant events and signals in the environment. While innovation performance creates a competitive advantage for innovation ecosystems, knowledge-based dynamic capabilities (KBDC) are drivers of innovation performance. Previous studies have established that organization intelligence has a significant effect on innovation performance from the perspective of both product and process innovation (Kiani et al., 2013). Xuezhong et al. (2008) investigated the impact of organizational intelligence on organizational innovation and concluded that organizational intelligence has a profound effect on the components of organizational innovation. Organizations with high organizational intelligence can achieve successful results in adapting innovations and using their intuition (Erçetin, 2001). The creation of organizational intelligence means targeting organizational developments that enhance creativity (Erçetin, 2004). Additionally, one of the sub-dimensions of organizational intelligence is knowledge management, and this concept requires the timely learning, sharing, and dissemination of the necessary information for an organization (Halal, 2006).

It is clear that learning, sharing, and disseminating new knowledge is closely related to innovative behavior. Previous studies have attributed organization intelligence to being a prerequisite for the development of innovative behaviors (Nevis et al., 1995; Glynn, 1996; Teece et al., 1997; Romijn and Albaladejo, 2002). Additionally, Chegani (2016) studied the effect of organizational intelligence and organizational creativity on technological innovation. The target populations of the study were researchers, experts, and managers of five manufacturing firms. Stratified sampling was employed, utilizing a sample size of 290 people. The results indicated that organizational intelligence had a positive effect on technological innovation performance. Furthermore, based on the reported R^2, organizational intelligence explained 55% of variation in organizational creativity and 45% of changes in technological innovation performance. Additionally, Kahkha et al. (2015) examined the relationship of organizational intelligence with innovation

performance and career advancement in an organization. Results indicated that, considering managers' perspectives, the status of organizational intelligence and career advancement was desirable; however, the status of innovation performance was moderate. Moreover, organizational intelligence and its components were significantly and positively correlated with innovation performance (Kahkha et al., 2015). Further, Altındağ & Öngel (2021) investigated whether organizational intelligence has an effect on a firm's innovation performance within the framework of resource-based theory among technology and information technology companies operating in the Marmara Region, Turkey. The study collected data from 495 managers between 2018 and 2019.

However, the study, established that perceived knowledge, which is one of the sub-dimensions of organizational intelligence, had no impact on innovation performance; while mental development had direct and positive effect on innovation performance. In addition, Xuezhong et al. (2008) investigated the impact of organizational intelligence on innovation performance and concluded that organizational intelligence has a significant effect on innovation performance. Generally, organization intelligence enhances more foresighted and feasible management innovation, reduces technical innovation risks, and shortens the period of knowledge innovation. Further, Kiani et al. (2013) attributed organization intelligence to having four benefits for an organization, namely, improving organizational performance, competitive advantage, efficiency, and innovation. Hence, organizational intelligence enhances creative solutions that increase innovation performance (Kiani et al., 2013). Similarly, Nasabee et al. (2009) established a statistically significant relationship between organizational intelligence and creativity; in other words, any increase or decrease in organizational intelligence indexes equally changes innovation performance. Mehara et al., (2012) while investigating the relationship between organizational intelligence and creativity among managers in public junior high schools. The study concluded that there is a positive and significant association between organizational intelligence and innovation performance. Further, Torabi *et al.* (2016) conducted a study in Iran. From the study findings, it was established that there was a positive and significant relationship between organizational intelligence and creativity. However, it was established that there exist a positive and significant relationship between organizational intelligence and innovation management (Kahkha et al., 2015). Additionally, organizational intelligence was found to have a positive effect on willingness to innovate among public institutions (Reza et al., 2014).

Hence, organizational intelligence assists firms in reallocating and transforming their resources to implement innovative solutions that optimize functionality while minimizing costs (Adewusi et al., 2024; Farley & Freyn,

2023; Saleem et al., 2024). Additionally, organizational intelligence empowers institutions to manage the innovation process efficiently by guiding decision-making and resource allocation (Calof, 2017; Cavallo et al., 2021; Ferreira & Coelho, 2020; Guimaraes et al., 2016). Thus, organizational intelligence enables firms to innovate within their resource constraints by providing insights into competitors' strategies, technological trends, and market demands. Based on the above discussions, it was necessary to determine whether organization intelligence had an impact on innovation performance. We hypothesize that organizational intelligence has no significant effect on innovation performance. We hypothesize that organizational intelligence has no significant effect on performance.

Methodology

Explanatory research design was employed to collect data from a target population of 2,506 senior managers from selected state cooperation in Nairobi County, Kenya. Using Yamane's (1967) formula, modified by Saunders et al. (2003), a sample of 350 was selected from a population of 2,506 top management staff, with 317 valid responses collected. The study measured innovation performance as the dependent variable using five indicators, while organizational intelligence, the independent variable, was assessed through three dimensions: self-reference, self-regulation, and self-organization. Both constructs were evaluated using a 5-point Likert scale. To ensure the validity of the findings, several statistical tests were conducted. The Kolmogorov-Smirnov test confirmed data normality, while Levene's test verified homoscedasticity, indicating equal variance. The Durbin-Watson statistic (1.726) confirmed the independence of errors, and ANOVA results supported the linear relationship between organizational intelligence (means and standard deviation) and innovation performance. Data was analyzed using descriptive and inferential statistics (correlation and Regression analysis).

Results and Discussion

Descriptive statistics

Descriptive Statistics for Organization Performance

The response variable of the study is organization performance. The result is presented in Table 1 below. The results indicate that most of the respondents agreed that their institutional competitive position has improved in the last five years (M = 3.88, SD = .740). Thus, institutional competitive position is a result of its ability to create value and outperform its competitors. In relation to the market share in the last five years, the company's market

share improved (M = 3.81, SD = .821). A high market share is a key indicator of a company's competitiveness. Generally, a firm's market share increases, and its dominance over the industry it operates in also increases. Essentially, an increase in market share boosts reputation and eventually widens the customer base and improves customer loyalty. However, in the last five years, the overall success has improved (M = 3.70, SD = .632). As a result, we found that the implementation of good corporate governance leads to an improvement in the organization's performance. While customer loyalty had improved in relation to the competitors (M = 3.81, SD = .697).

Through the creation of a strong onboarding experience, state corporation clients are more likely to recommend the company to their friends and family, which can lead to new business and help the company grow. Generally, an increase in customer retention results in increased revenue and eventually overall organizational performance. Further, customer loyalty of the state corporation had improved in the last five years compared to the competitors (M = 3.73, SD = .810); thus, when a customer is loyal to a company, they aren't easily swayed by price or availability. Customer loyalty is consistently meeting and exceeding customer expectations, resulting in higher organizational performance. Additionally, it was agreed that employee turnover had deteriorated significantly in the last five years (M = 4.02, SD = 7.21). High staff turnover results in a decrease in productivity, increased recruitment costs, avoidable time spent on training new employees, and lost sales.

Generally, state corporations with high staff turnover typically experience low employee morale and productivity rates. Hence, employee turnover was significantly low, thus increasing the overall performance of medium-sized enterprises. Lastly, the company image had improved compared with the competitors (M = 3.70, SD = .632). Generally, when a company has a good corporate image, it ensures consumers are given value for their products or services, resulting in higher organizational performance. The result also showed that the standard deviation ranges from 0.595 to 0.841, with an overall standard deviation (SD = 0.716). Generally, all the values of the standard deviation were not greater than plus or minus 2 SD, representing measurements that are closer to the true value than those that fall in the area greater than ± 2 SD. Further, the values of skewness and kurtosis as displayed in Table 1 are within the conventional range, such that skewness is < 3 and kurtosis is < 10 (Kline, 2005, 2011; Arslan, 2019).

This showed a normal distribution of the responses with respect to the competitive advantage of medium-sized enterprises in Kenya; thus, the result connotes a non-violation of the normality assumption (Brown & Simcock, 2021).

Table 1: Organization Performance

In the last five years	Mean	SD	Skewness	Kurtosis
The company competitive position	3.88	.740	-.271	-.130
The company market share	3.81	.821	-.334	-.319
The company overall performance and success	3.70	.632	-.423	.359
The company customer loyalty	3.81	.697	-.860	2.344
The company customer satisfaction	3.73	.810	-1.029	1.821
The company employee turnover	4.02	.721	-.371	-.027
The company image	3.70	.632	-.423	.359
Organization Performance	**3.844**	**0.716**	**-0.464**	**0.594**

Note(s): the table presents the descriptive statistics for organization performance the dependent variable of the study: Obs = 317; SD = Standard Deviation; 1 = Has Deteriorated Significantly, 2 = Deteriorated 3 = No Change, 4 = Improved 5 = Has Improved Significantly

Source: Survey Data, 2023

Descriptive Statistics for Innovation Performance

Table 2 below depicts the descriptive statistics for innovation performance. It is evidenced by the results that the number of new or improved products launched to the market is above the average of your industry (M = 3.81, SD = .741). This is beneficial to the firm as it would spur organizational performance and sustainability. Similarly, the result revealed that state corporations, the number of new or improved products and services launched to the market, is above the average (M = 3.86, SD = .957). This implies that state corporations will continuously explore opportunities as time passes and also create new opportunities for themselves.

The results further showed that organizations consider and emphasize the importance of research and development (M = 3.75, SD = .708). This helps state corporations differentiate their businesses from their competitors, resulting in better products and higher revenue, hence better performance. In addition, it was established that state corporations considered new lines of products have been introduced to offer solutions that offer good and cheap products and services (M = 3.95, SD = .602). Thus, quality is essential to satisfying customers, hence influencing their willingness to buy in the future. Essentially, quality products are significant in enhancing revenues and differentiating the company's products in the long run. Furthermore, the results showed that changes introduced in products during the last five years were very important (M = 3.73, SD = .670). This suggests that state corporations consider cost reduction since it allows profits to increase as a result of lowering expenses, resulting in an increase in competitiveness and a stronger financial position.

The findings in table 2 depicted evidence that the dispersion was distributed around the mean, and hence the findings were a normal distribution. The result also showed that the standard deviation ranges from 0.602 to 0.957 with an overall standard deviation (SD = .736). Generally, all the values of the standard deviation were not greater than plus or minus 2 SD, representing measurements that are closer to the true value than those that fall in the area greater than ± 2 SD. Further, the values of skewness and kurtosis as displayed in Table 2 are within the conventional range, such that skewness is < 3 and kurtosis is < 10 (Kline, 2011). Hence, a normal distribution of the response with respect to the innovation performance of state corporations in Kenya is a non-violation of the normality assumption (Joanes & Gill, 1998; Brown & Simcock, 2021).

Table 2: Innovation Performance

	Mean	SD	Skew	Kurto
No of new or improved products/services launched to the market is above the average of your industry	3.81	.741	-.159	-.277
Number of new or improved processes is above the average of your industry.	3.86	.957	-.868	.569
At the company emphasizes on the importance of research and development.	3.75	.708	-.146	-.124
New lines of products have been introduced during the last five years.	3.95	.602	-.274	.738
Changes introduced in products during the last five years are very important.	3.73	.670	-.480	1.785
Innovation Performance	**3.82**	**0.736**	**-0.385**	**0.538**

Note(s): the table presents the descriptive statistics for innovation performance-mediating variable of the study: Obs = 317; SD = Standard Deviation; Skew = Skewness; Kurto = Kurtosis; 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree

Source: Survey Data, 2023

Correlation Results

Table 3 presents the correlation analysis and Variance Inflation Factor (VIF) results, confirming that multicollinearity was not an issue, as all VIF values were below 10 and tolerance levels were under 1. Furthermore, correlation values among variables remained below 0.9, meeting the recommended thresholds.

The findings indicate a significant positive relationship between organizational intelligence and innovation performance [r = 0.666, ρ < 0.01]. This suggests that higher organizational intelligence enhances creativity, leading to increased product and process innovation, aligning with previous studies by Chen and Nath (2018) and Vugec et al. (2020).

Table 3: Correlation Matrix between Variables and VIF Values

	OP	OI	VIF
Innovation Performance (IP)	1		-
Organization Intelligence (OI)	.666**	1	1.24

*Note(s): the table presents the correlation matrix between variables of the study: Sample = 317; All numbers are rounded to four decimal places; ***p-value < 0.01; **p-value < 0.05; *p-value < 0.1; VIF < 10*

Source: Research Data, 2023

Hypothesis Testing

The regression results indicate that organizational intelligence significantly influences innovation performance in state corporations, explaining 58.4% of its variance (R^2 = .712, adjusted R^2 = .584).

Table 4: Innovation Performance and Organization Performance of State Cooperation

	MODEL 1[a]				
	B	**t**	**P>|t|**	**95% Interval**	**Conf.**
(Constant)	-.268** (.080)	-2.586	.000	-.278	.524
Predictor Variables					
OI	.593** (.068)	14.183	.000	.527	.993
Model Summary					
R	.764				
R Square	.584				
Adjusted R Square	.581				
F Change	477.567**				
Durbin Watson	1.726				
2[a]Dependent Variable: Innovation performance					

*Note(s): the table presents the regression between variables of the study: OI – Organization intelligence; IN –Innovation performance; ***p-value < 0.01; **p-value < 0.05; *p-value < 0.1; Obs= 317; Standard errors are given in parentheses. All numbers are rounded to four decimal places*

Source: Survey Data, 2023

The Durbin-Watson statistic confirmed no violation of the independence of errors assumption. ANOVA results further validated the model's predictive capability [F(1,315) = 477.567, p < 0.05]. The study also found a positive and significant effect of organizational intelligence on innovation performance (β = .593, p = 0.000), suggesting that a one-unit increase in organizational intelligence leads to a 0.593-unit improvement in innovation performance. Thus, the findings suggest that organizational intelligence is significantly

associated with innovation performance. As a result, increased organizational intelligence promotes organizational creativity, which leads to greater product and process innovation. As a result, it improves innovation performance.

Discussion

The study found that there is a significant positive relationship between organizational intelligence and innovation performance. Previous, studies have attributed organizational intelligence to the development of innovative behaviors and innovation performance (Nevis et al., 1995; Glynn, 1996; Teece et al., 1997; Romijn and Albaladejo, 2002; Reza et al., 2014; Kahkha et al., 2015; Torabi et al., 2016). Thus, the study posits that innovation performance is a mechanism through which organizational intelligence is translated into value creation. Hence, organizational intelligence highlights organization's ability to enhance innovation performance, information, general knowledge, effective work, and provides organizations with a competitive advantage by converting information into knowledge. Thus, institutions typically depend on their innovation abilities to survive and gain a competitive advantage. Hence, the most effective way to produce innovation is to evaluate the information it has acquired, improve its relations with organizational intelligence, and invest in its desired future position. From the perspective of the dynamic capabilities theory, competitive intelligence plays a critical role in enhancing a firm's ability to innovate by developing dynamic capabilities through sensing, seizing, and reconfiguring resources in response to environmental changes. Therefore, organizational intelligence guides strategic decisions that leverage innovation performance. Hence, the most effective way for State Corporation to enhance innovation performance is to evaluate the information it has acquired through organizational intelligence. Thus, we attribute organizational intelligence to business success as a result of innovation performance.

Conclusion and recommendation

Thus, Organizational intelligence enhances access to critical information across sales, finance, and marketing, enabling firms to identify trends, adapt to changes, and address unmet customer needs through innovation. It equips organizations with strategic insights, allowing them to innovate even in resource-constrained environments. From the perspective of the dynamic capabilities theory, competitive intelligence plays a critical role in enhancing a firm's ability to innovate by developing dynamic capabilities through sensing, seizing, and reconfiguring resources in response to environmental changes. Therefore, organizational intelligence guides

strategic decisions that leverage innovation performance. Hence, the most effective way for State Corporation to enhance innovation performance is to evaluate the information it has acquired through organizational intelligence. Thus, we attribute organizational intelligence to business success as a result of innovation performance.

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