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Relationship between technology orientation and Competitive advantage among Maritime Logistics Firms operating in Kenya Port authority.

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Abstract
Managers in the public and commercial sectors have recently become more interested in the idea of competitive advantage. Businesses gain their competitive advantage by implementing a value-creating strategy or business model that is not being used concurrently by a sizable proportion of its present or potential competitors. The mission, aims, objectives, strategies, and resources of institutions competing in a specific target industry fluctuate throughout time. While some are struggling financially, others are established and have years of market expertise. Others pursue long-term earnings, while some strive for quick market share increase. A company's ability to produce and offer consumers value that is greater than the cost of doing so gives it a competitive advantage. Customers are willing to pay for value and seek it out. There are several assets in the maritime industry. Because of this, the majority of the changes have been made to increase margins through decreasing expenses. The industry has relied on economies of scale to reduce costs. In order to obtain global coverage, maritime logistics businesses consolidated through mergers and acquisitions and formed alliances. Companies that provide maritime logistics adjust their business strategies to concentrate on adding value by providing integrated logistics services. The purpose of this study was to analyze the Relationship between technology orientation and Competitive advantage among Maritime Logistics Firms operating in Kenya Port authority. The study was anchored on contingency theory. The study employed correlational research design and positivist research methodology. The 201 marine logistics companies operating under the Kenya Ports Authority were the study's target population, and all of the CEOs were used as the sample size and responses. A questionnaire on a five-point Likert scale was used to gather the data. Piloting took place at the Embakasi container deport in Nairobi. While descriptive statistics was used to produce means and standard deviation from the collected data, correlation and multi linear regression analysis were used to determine the strength and direction of the relationship between the variables and the influence of technology orientation on competitive advantage. The majority of CEOs of maritime logistics companies operating in Kenya's ports were discovered to be men. Additionally, the bulk of the CEOs were between the ages of 41 and 50. The study also revealed that bachelor's degree holders made up the majority of the labor force. The majority of the CEOs of maritime logistics companies operating in Kenya Port authority in Kenya concurred that there was a significant impact of technology orientation on competitive advantage (r=0.792, P=0,000). This study found that among maritime logistics firms operating in Kenya's port authority, technology orientation had a substantial positive link with competitive advantage. The report suggests that Maritime Logistics Firms operating in Kenya should aim to have a technical plan that has been demonstrated, to have technological forecasting, and to have an operational roadmap for technology.

Key words: *Technology orientation, competitive advantage.*

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I. Introduction

According to Foye (2018), a company's competitive edge is what sets its products and services apart from all other alternatives offered to customers. The strategies are applicable to any business, nation, or person in a competitive environment. A company's unique, strategic, and organization-specific resources provide it a competitive edge that is hard to match.

Three strategies can be used to acquire a competitive edge. The industry viewpoint, which holds that a company's involvement in a sector with appealing structural qualities is mostly responsible for above-average returns. According to the resource-based view, firm heterogeneity based on rare, valuable, non-substitutable, and challenging-to-imitate resources and capabilities is the primary cause of disparities in business performance.

Gaining a competitive edge can be achieved through relationship-specific assets, knowledge-sharing procedures, and excellent governance. Among the ways to gain a competitive edge is to be more environmentally friendly than your rivals (Worthington, 2013).

Concentrating on sustainability can increase the effectiveness of the supply chain, encourage innovation, and even result in new business models (Nidumolu et al., 2015). If customers value the service, intermodal transportation can only offer a competitive advantage. Since target customers are a crucial component of the business model, the viewpoint of the customer (the shipper and forwarder) must be taken into account.

Focusing on sustainability can improve supply chain efficiency, spur innovation, and even lead to novel business models (Nidumolu et al., 2015). Intermodal transportation can only provide a competitive advantage if clients value the service. As a result, the customer's perspective (the shipper and forwarder) must be considered, as target customers are an important element of the business model. It is only feasible to gain a competitive advantage through multimodal transportation with a more ecologically friendly nature if customers are interested. Superior environmental efficiency could be a major motivator for using intermodal transportation and, as a result, for port authorities, terminal operators, and shipping lines to establish intermodal transportation plans and business models. As a result, the attitudes of shippers and forwarders toward freight transportation sustainability must be analyzed. Because of the competition they face from larger organizations with lower entry barriers, strategic orientation will have ramifications for marine logistics firms in the process of creating new innovative ideas. Strategic direction has an impact on company success, particularly in industries with high levels of rivalry, such as technology and maritime logistics (Dutot et al., 2016).

When the government recently commissioned a new contemporary standard gauge railway, a policy was passed requiring all cargo going for Nairobi and beyond to be transported by the railway, as opposed to before when traders could select between road and railway transportation. Many marine logistics enterprises operating at Mombasa's port have seen their business performance and competitiveness suffer as a result of this government directive. This research will look into the impact of strategic orientation on marine logistics enterprises' competitive advantage, as well as how government policy moderates the relationship between the two variables.

Technology orientation as a strategic orientation is a firm-specific, culture-based set of competencies that align with the firm's resource based view. Furthermore, technology orientation is defined as creating firm behaviors that are expected to create competitive advantage in the long run in tandem with firm strategy (Zhou et al., 2017). A significant amount of money has been committed and continues to be invested in Technology Orientation (Lee, 2016), in the belief that this investment based on expectation will yield positive benefits in the future. Consumers choose products and services with technological benefits, according to technology orientation (Modi & Sahi, 2017).

Firms with a high technology orientation, do better in business when technology evolves rapidly because they can develop new processes, products, and services to meet client needs. Firms that combine customer-value innovation with technology innovation have a better chance of achieving long-term profitability and success. Technology-oriented organizations may design new technological solutions and offer new and advanced products to fulfill client needs because of their strong dedication to R&D and implementation of the newest technology. As a result, technology-oriented businesses have a competitive advantage in terms of technical leadership and differentiated goods, which can lead to superior results (Ali et al., 2015).

Statement of the problem

The entire production of maritime logistics in 2018 was 30,923MT, with containerized traffic totaling 1,303,862 twenty-foot equivalent units at Kenya Port Authority. The primary stakeholders and players in the maritime logistics sector worked cooperatively to bring about this expansion. As a developing nation, Kenya is heavily dependent on international shipping lines, and foreign firms with nationalistic interests dominate its marine logistics (Kitimo, 2019). Despite the tremendous competition amongst maritime logistics companies, this does not result in cheaper rates for importers because once goods are landed, they still enjoy equal economies of scale (Marete, 2018). As they battle for a small clientele and a tonnage that is only gradually expanding, the capability of the several maritime logistics companies to effectively compete among themselves is brought into sharp relief. This is particularly relevant given that the Kenyan government recently passed a law requiring the transfer of all containers via standard gauge railroad, which is expected to have an effect on trade along the Kenyan coast.

The resource-based perspective, which contends that businesses can acquire and retain a competitive edge by effectively allocating resources, is a common method used in studies of competitive advantage (Shibin et al., 2017). Numerous empirical studies examined the resource-based viewpoint hypothesis in certain industries (Wong & Yip, 2019). Prior studies have also emphasized the impact of a nation's government on the commercial activities and competitive advantage of multinational corporations (Lorentz et al., 2018). Although resource-based perspective theory is the lens through which the majority of studies examine competitive

advantage in the global logistics sector (Chahal et al., 2020), very few studies have examined the influence of governmental policies in fostering competitive advantage (Acciaro, 2015). Despite the fact that neither study examined the effects of government initiatives or regulation, Yu et al. (2018) examined the relationship between competitive advantage and procurement management capabilities, supply chain capabilities, and information systems. Although resource-based factors are typically used to gain a competitive advantage, policies as well as the institutional and legal environment have an impact (Chang & Lai, 2017).

As a result, there is a research deficit in the Kenyan marine logistics business, as there are few studies addressing contingency theory. As a result, this research raises the question, what is the relationship between technology orientation and the competitive advantage of marine logistics companies? Thus, this study analyzed the relationship between technology orientation and Competitive advantage among Maritime Logistics Firms operating in Kenya Port Authority.

II. Literature review

Contingency theory, also known as strategic fit or strategic configuration, arose from sociological functionalist theories of organization structure, such as the structural approaches to organizational research. This theory is a method of studying business behavior in which explanations are given for how external elements like technology, culture, and the environment influence the design and function of organizations. This theory is based on the assumption that no single organizational structure is equally relevant to all businesses. Rather, the effectiveness of an organization is determined by the fit or mismatch between the type of technology, environmental volatility, the size of the company, organizational structure, and information system. Furthermore, contingency theory implies that each firm's environment and challenges are unique, and that no single leadership or management technique will work in all instances. If the leadership style used by company managers fulfills the needs of the circumstances and the expectations of the employees, it will have a good impact on the firm and its members. This theory focuses on aligning the greatest leaders with specific situations and divides leadership styles into two categories: relationship-driven and task-driven. Understanding firm leadership begins with a consideration of the leader and his followers, as well as the context in which leadership takes place (Northouse & Lee, 2015). Any leader with emotional intelligence can effectively regulate his emotions, build trust, and communicate, all of which are important in the development of relationships (Ordun & Beyhan Acar, 2014).

Empirical literature

Andria et al., (2020) assessed the Impact of ICT Capability on Small Business Competitive Advantage via Entrepreneurial Orientation and Organizational Agility. The study employs a quantitative approach with a population of apparel retailers in Pekanbaru City, Indonesia's traditional markets. Random sampling was used to collect the sample. The survey included 104 small businesses from five traditional apparel market centers. Structural Equation Modeling with Partial Least Squares was used to process the data. According to the findings, ICT capability has a significant impact on competitive advantage, entrepreneurial orientation, and organizational agility. Competitive advantage is significantly influenced by organizational agility and entrepreneurial orientation. This suggests that small businesses' ICT capabilities can be directly translated into a competitive advantage.

Osore et al., (2020) investigated the impact of technological orientation on the performance of conventional and Islamic banks in Kenya. The research was conducted using a mixed methods approach that included descriptive, non-experimental, and causal approaches. This study considered a census that targeted a population of all forty-three (43) commercial banks in Kenya. The primary data collection instrument for the study was a questionnaire. Data was processed and analyzed using both descriptive and inferential statistics. According to the findings, Technical Orientation was identified as an independent variable and dimension of Strategic Orientation. It was considered to have three dimensions: services, products, and R&D.

Tanggono and Agustini, (2022) investigated the impact of new technology adaptation and market orientation on BPRs' competitive advantage and business performance in Kabupaten Karanganyar. Purposive sampling was used to select executive officers and directors from 12 BPRs in Kabupaten Karanganyar. Respondents were chosen from those who had worked for the BPR for at least three years, resulting in 54 respondents. The questionnaire was used to collect data, which was then analyzed using Structural Equation Modeling-PLS. According to the findings, new technology adaptation and market orientation have a positive and significant impact on competitive advantage. Market orientation has an indirect effect on business performance through competitive advantage, whereas new technology adaptation has a direct effect on business performance.

III. Methodology

The research philosophy for this study was positivist. The researcher utilized a correlation research design in which the data from the respondents was corrected only once. The target population for this study consisted of 201 maritime logistics firms operating at Kenya Ports Authority. The sample size of this study consisted of 201 CEOs of the Maritime logistics firms operating at Kenya Ports Authority. The researcher employed questionnaires in this investigation. Primary data was collected using a single structured questionnaire that captured all of the study's variables. Research instrument was pretested by carrying out a pilot study in embakasi container depot involving 20% of the target population. Data was examined and analyzed using a Software (SPSS) Version 24.0 through descriptive and inferential statistics. Frequencies, percentages, and cross tabulations was used for presenting the findings.

Response rate

Out of a total of 201 respondents that were the target population, 140 replies were ultimately received. According to Mugenda & Mugenda (2012), a response rate of 50% is sufficient for analysis and reporting, a response rate of 60% is generally good, and a response rate of above 70% is great. This constituted a 69.7% response rate, which was deemed good for analysis.

Data Reliability Assessment

Cronbach's Alpha is a reliability coefficient that provides a bias-free estimate of data generalization (Mugenda & Mugenda, 2012). In this investigation, the researcher aimed to evaluate the accuracy of the information gathered to gauge the numerous study factors. Cronbach Alpha was calculated to determine the trustworthiness of the data collected in order to measure this. A Cronbach Alpha score of better than 0.7 is considered to be appropriate for reliability assessment in a research investigation (George & Mallery, 2003).

Table 1: Cronbach Alpha for Reliability Assessments

Variables	Number of items	Cronbach Alpha Values
Technology Orientation	4	0.790
Competitive advantage	6	0.889

Respondents' characteristics

Male respondents made up 93.6% of the sample, while female respondents made up 6.4%. This disproportionate gender distribution suggests that there were more males than women CEOs working for maritime logistics companies operating under the Kenyan Port Authority. In addition, this study indicated that the majority of respondents (39.3%) were between the ages of 41 and 50. This indicates that the CEO personnel in this industry is sufficiently developed and have the necessary exposure and experience to propel the industry to greater heights. The results also show that bachelor's degrees, which accounted for 40.0% of the highest level of education among respondents, were the most common. There were 22.1% master's degree holders. The results also showed that 37.9% of the respondents held additional qualifications, which this study believed to include professional certifications and qualifications as well as diploma and certificate holders. This suggests that the respondents are intelligent and aware of the concerns surrounding competitive advantage among maritime logistics firms operating under the Kenya Port Authority.

Influence of technology orientation on competitive advantage

In this research study, the researcher emphasized on establishing the extent of technology orientation on competitive advantage in Maritime Logistics Firms operating in Kenya Port authority in Kenya. Four attributes of technology orientation were given to CEOs to respond to, Table 4.6 presents the analyzed data from the CEOs regarding the extent of technology orientation on competitive advantage in deposit taking savings and credit cooperative societies in Kenya.

Table 2. Influence of technology orientation on competitive advantage

Statements	N	Mean	Std. Deviation
This organization has proven technological strategy	140	4.0143	1.20542
In this organization there is technological forecasting	140	4.0786	1.29230
This organization exercises technology roadmap	140	4.1786	1.09458
This organization has a record technology project portfolio	140	3.8357	1.21508
Average	**140**	**4.0268**	**.67236**

From these study results, majority of the chief executive officers agreed that there was an extent of technology orientation on competitive advantage in Maritime Logistics Firms operating in Kenya Port authority in Kenya.

These results are supported by the results of Andria et al., (2020) who assessed the Impact of ICT Capability on Small Business Competitive Advantage via Entrepreneurial Orientation and Organizational Agility. According to the findings, ICT capability has a significant impact on competitive advantage, entrepreneurial orientation, and organizational agility. Competitive advantage is significantly influenced by organizational agility and entrepreneurial orientation. This suggests that small businesses' ICT capabilities can be directly translated into a competitive advantage.

Moreover, the aspect of "this organization exercises technology roadmap" scored the highest mean (M=4.1786, SD = 1.09458) among the other aspects of technology orientation meaning that it the most vital aspect in competitive advantage Maritime Logistics Firms operating in Kenya Port authority in Kenya.

Competitive advantage as a result of Market orientation

CEOs were asked to react on six aspects of competitive advantage of the Maritime Logistics Firms they represent in order to gauge the amount of competitive advantage in Maritime Logistics Firms operating in Kenya Port authority in Kenya. The results are presented in Table 3.

Table 3: Competitive advantage

Statements	N	Mean	Std. Deviation
There is effective supply chain management in this organization	140	4.2714	1.45850
There is high rate of organizational responsiveness in this firm	140	4.8857	.58869
There is high rate of growing market share in this firm	140	4.5786	1.05304
This is increased customer satisfaction in this organization	140	4.4714	1.21999
This organization has high returns on investment	140	4.4929	1.17832
There is cost leadership in this organization	140	4.8214	.63776
Average	**140**	**4.5869**	**.52798**

The facet "there is high rate of organizational responsiveness in this firm" received the highest mean (M= 4.8857, SD = 0.58869), which makes it clear that organizations that are responsive to their competitive advantage have high rates of organizational responsiveness in this firm. The study concluded from these findings that Kenya's port authority provides logistics firms operating there with a considerable competitive advantage.

Testing of Hypothesis

This study sought to establish the link between the independent variable (technology orientation) and dependent variable (competitive advantage).

Table 4: Testing of Hypothesis

		Competitive Advantage	Technology orientation	Deductions
Competitive Advantage	Correlation Coefficient (Spearman's rho)	1.000	.792	Positive
	Sig. (P-Value)	.	.000	Reject H_o
Technology orientation	Correlation Coefficient	.792	1.000	Positive
	Sig. (P-Value)	.000	.	Reject H_o

To establish the relationship between technology orientation and Competitive advantage among Maritime Logistics Firms operating in Kenya Ports authority, a null and alternate hypothesis was tested.
The null hypothesis that there was no relationship between technology orientation and competitive advantage among Maritime Logistics Firms operating in Kenya Ports authority was tested against the alternate that there is a relationship between technology orientation and competitive advantage among Maritime Logistics Firms operating in Kenya Ports authority.
Null and the alternative hypotheses used were as follows;
H01: There is no relationship between technology orientation and Competitive advantage among Maritime Logistics Firms operating in Kenya Ports authority.
H02: There is a relationship between technology orientation and Competitive advantage among Maritime Logistics Firms operating in Kenya Ports authority.
Results in Table 4.10 shows a strong positive correlation coefficient of 0.792 which is statistically significant ($p<0.05$). This leads to rejecting the null hypothesis and accepting the alternate hypothesis that there is a relationship between technology orientation and competitive advantage among Maritime Logistics Firms operating in Kenya Ports authority. This means that on overall, technology orientation is positively related to competitive advantage among Maritime Logistics Firms operating in Kenya Ports authority.
This result is supported by the findings of Osore et al., (2020) who investigated the impact of technological orientation on the performance of conventional and Islamic banks in Kenya. The result found that Technical Orientation was identified as an independent variable and dimension of Strategic Orientation. It was considered to have three dimensions: services, products, and R&D

IV. Conclusion

The study concludes that there was a positive significant relationship between technology orientation and competitive advantage ($r = 0.792$, $p < 0.05$) in Maritime Logistics Firms operating in Kenya Port authority in Kenya Maritime Logistics Firms operating in Kenya Port authority in Kenya, importantly, technology orientation had the top effect on competitive advantage compared to other independent variables such as market orientation, entrepreneurial orientation and process orientation.

V. Recommendation

it is recommended that Technology orientations are very key and important to firms, thus, Management of Maritime Logistics Firms operating in Kenya Port authority in Kenya should purpose to have proven technological strategy, to have technological forecasting and have exercises technology roadmap.

References

[1]. Acciaro, M. (2015). Corporate responsibility and value creation in the port sector. International Journal of Logistics Research and Applications, 18(3), 291-311. https://doi.org/10.1080/13675567.2015.1027150
[2]. Ali, F., Amin, M., & Cobanoglu, C. (2015). An integrated model of service experience, emotions, satisfaction, and price acceptance: An empirical analysis in the Chinese hospitality industry. Journal of Hospitality Marketing & Management, 25(4), 449-475. https://doi.org/10.1080/19368623.2015.1019172
[3]. Andria S., Arifinb K., & Febrian, A. F. (2020). The Influence of ICT Capability on Competitive Advantage of Small Businesses through Entrepreneurial Orientation and Organisational Agility -The Case of Apparel Retailers in Pekanbaru Indonesia. International Journal of Innovation, Creativity and Change, 12(4), 51-65.
[4]. Chahal, H., Gupta, M., Bhan, N., & Cheng, T. (2020). Operations management research grounded in the resource-based view: A meta-analysis. International Journal of Production Economics, 230, 107805. https://doi.org/10.1016/j.ijpe.2020.107805
[5]. Chang, C., & Lai, P. (2017). An evaluation of logistics policy enablers between Taiwan and the UK. Maritime Business Review, 2(1), 2-20. https://doi.org/10.1108/mabr-09-2016-0018
[6]. Dutot, V., Lacalle Galvez, E., & Versailles, D. W. (2016). CSR communications strategies through social media and influence on E-rEputation. Management Decision, 54(2), 363-389. https://doi.org/10.1108/md-01-2015-0015
[7]. Foye, J. (2018). A comprehensive test of the Fama-French five-factor model in emerging markets. Emerging Markets Review, 37, 199-222. https://doi.org/10.1016/j.ememar.2018.09.002
[8]. Lee, Y. (2016). Alignment effect of entrepreneurial orientation and marketing orientation on firm performance. International Journal of Customer Relationship Marketing and Management, 7(4), 58-69. https://doi.org/10.4018/ijcrmm.2016100104
[9]. Lorentz, H., Kumar, M., & Srai, J. S. (2018). Managing distance in international purchasing and supply: A systematic review of literature from the resource-based view perspective. International Business Review, 27(2), 339-354. https://doi.org/10.1016/j.ibusrev.2017.09.002
[10]. Modi, P., & Sahi, G. K. (2017). Toward a greater understanding of the market orientation and internal market orientation relationship. Journal of Strategic Marketing, 1-18. https://doi.org/10.1080/0965254x.2017.1318943
[11]. Nidumolu, R., Prahalad, C., & Rangaswami, M. (2015). Why sustainability is now the key driver of innovation. IEEE Engineering Management Review, 43(2), 85-91. https://doi.org/10.1109/emr.2015.7123233
[12]. Northouse, P. G., & Lee, M. (2015). Leadership case studies in education. SAGE Publications.
[13]. Ordun, G., & Beyhan Acar, A. (2014). Impact of emotional intelligence on the establishment and development of high quality leader member exchange (LMX). SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2568198
[14]. Osore, S. A., Ngugi, Phd, P. K., & Ogollah, Phd, K. (2020). Influence of technological orientation on performance of conventional and Islamic banking in Kenya. Journal of Business and Strategic Management, 5(1), 1-14. https://doi.org/10.47941/jbsm.366

[15]. Shibin, K. T., Dubey, R., Gunasekaran, A., Hazen, B., Roubaud, D., Gupta, S., & Foropon, C. (2017). Examining sustainable supply chain management of SMEs using resource based view and institutional theory. Annals of Operations Research, 290(1-2), 301-326. https://doi.org/10.1007/s10479-017-2706-x
[16]. Tanggono, S., & Agustini, M. Y. (2022). The influence of Tecnology adaptation and market orientation on business performance of BPR in Karanganyar with competitive advantage as the mediation. Journal of Management and Business Environment (JMBE), 3(2). https://doi.org/10.24167/jmbe.v3i2.4288
[17]. Wong, M. C., & Yip, T. L. (2019). Influence of Transportation Infrastructure on the Relationship Between Institutions and Economic Performance. Maritime Business Review, 4(4), 395–412.
[18]. Worthington, I. (2013). Greening business: Research, theory, and practice. Oxford University Press.
[19]. Yu, W., Chavez, R., Jacobs, M. A., & Feng, M. (2018). Data-driven supply chain capabilities and performance: A resource-based view. Transportation Research Part E: Logistics and Transportation Review, 114, 371-385. https://doi.org/10.1016/j.tre.2017.04.002
[20]. Zhou, A., Fan, L., Ma, M., & Tao, B. (2017). Chinese process safety management core elements and control measures. Process Safety Progress, 36(4), 378-381. https://doi.org/10.1002/prs.11878