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Disruptive Technologies as Strategic Tool for Enhancing Organizational Performance of Small and Medium Enterprises (SMEs) in Rivers State

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Abstract: In order to improve the organisational performance of small and medium-sized businesses (SMEs) in Rivers State, this study focused on disruptive technologies as a strategic tool. The study was directed by two research topics and investigated two null hypotheses. The study used a correlational design. The sample was taken from a census survey of 223 employees of Small and Medium Businesses (SMEs). To address the study objectives and assess the hypotheses developed at the 0.05 level of significance, Pearson Product Moment Correlation (PPMC) was employed.

Findings showed that disruptive technologies and the organisational performance of SMEs in Rivers State were correlated, and that there was a substantial association between the categories of disruptive technologies and the improvement of SMEs' organisational performance. Because of the correlation between the types of disruptive technologies discussed and the improvement of SMEs' organisational performance, as well as the relationship between disruptive technologies and organisational performance, it was determined that SMEs would benefit from regular deployment of disruptive technologies if they wanted to succeed in their businesses and maintain a larger market share in Rivers State. The report suggests that in order for SMEs to be relevant in the business world, they need be cautious of disruptive technologies and ready to adapt to changes and challenges since the global market is changing due to these disruptions. Furthermore, SMEs should keep using disruptive technologies to achieve success because they improve organisational performance. However, they need increase their capacity by developing and keeping employees who can effectively use the technologies.

Keywords: Disruptive technologies, strategic tool, enhancing organizational performance, small and medium enterpriseses (SMEs).

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Introduction

Disruptive technology, which has become essential to business performance and allows organisations to recognise emerging trends, adjust to new demands, and seize unexplored market opportunities, presents companies with ongoing challenges to stay ahead of the curve in today's fast-paced, constantly-changing business landscape. This is typically linked to the disruption caused by the quick changes in customer demands and technical advancements, which forced businesses to look for new ways to stay competitive and preserve their market position by exploring new markets (Ukata & Nmehielle, 2020).

Concept of Disruptive Technologies

Disruptive technologies are those that can change how resources are used, how people collaborate within organisations, and how value pools are reorganised, therefore upending the status quo of corporate operations. According to Consumer Search (2025), breakthroughs that fundamentally change how consumers or industries function are considered disruptive technologies. These technologies may begin small and cater to a specific market, but as they develop, they have the potential to replace well-known goods and services. Typewriters being disrupted by personal computers and the mobile phone business being revolutionised by smartphones are classic instances. According to Wang, Guo, and Zhang (2021), disruptive technology is one that upends an established technology and causes a stir in the industry, or it might be a revolutionary innovation that establishes an entirely new industry. Scientific advancements that surpass the typical capabilities of products and technologies and establish a new competitive paradigm are typically considered disruptive technologies.

In addition to producing winners and losers, disruptive technologies and significant technological advancements also bring about new forms of interaction that threaten established institutional and traditional functioning and redistributing systems. Technologies that cause disruptions fundamentally alter how businesses and consumers interact with goods and services. A company's competitiveness, output, and operational efficiency are all enhanced by disruptive technology, which also raises consumer happiness (Tidd & Bessant, 2020). The fall of the old and analogue sector and the introduction of new digital technical domains frequently correspond to the advancement and decrease in company performance, causing technological innovations to reorganise spatial hierarchies (Christensen, Raynor & McDonald, 2015). For business owners, executives, and value-driven organisations, disruptive technology and innovation have emerged as a potent way of thinking about innovation-driven growth.

Disruptive technologies are those that overtake long-standing market leaders. When a product or service first gains traction in low-end applications at the bottom of a market—usually by being more affordable and easily accessible—it is said to be disruptive technology. From there, it relentlessly advances up marketplaces, eventually pushing out more established rivals. Technologies that facilitate new business models and those that provide novel user experiences are the two main types of disruptive technologies. The following list and explanation of disruptive technology examples comes from Christensen, McDonald, Altman, and Palmer (2018):

5G Technology

Over time, mobile wireless communication networks have undergone a number of advancements. From the first generation (1G) to the fourth generation (4G) and LTE, the fifth generation of wireless networks is the most recent and best example of a wireless network revolution (Khee et al., 2023). 5G stands for fifth generation cellular network technology, which offer a mobile device network. The 5G network's high-value, fast-speed technology enables effective and quick connectivity. The largest beneficiaries of the 5G technology are small and medium businesses. Internet users can connect with one other using faster and more effective technologies thanks to 5G technology. SMEs can advertise online and reach a global audience of potential clients. 5G technology allows SMEs to enhance their technology, production, and service ideas to better offer their clientele. 5G may enhance the connections and interactions between SMEs and their clients.

Artificial Intelligence and Machine Learning

Combining techniques to make a machine perform tasks that were previously performed by humans, including learning from data analysis or planning, is known as artificial intelligence (AI). (Ukata & Mekuri-Ndimele, 2025b; Ukata & Agburuga, 2024a; Ukata & Agburuga, 2024b; Sahai & Lall, 2022). Machine learning is a branch of artificial intelligence that enables computers to learn on their own and perform tasks in an independent and sensible manner.

Blockchain

Blockchain technology is used to build shared, transparent, and more secure procedures in a digitalised workflow. It creates a unique registration network that lowers risk and costs by functioning as a chain of blocks with all nodes connected to one another, ensuring the traceability of any process (Ukata & Obinichi-Aaron, 2025; Koh, Orzes & Jia, 2019).

Cloud Services

Cloud services, sometimes referred to as cloud computing, make it possible to save files online without requiring external storage devices. The fact that this innovative technology enables people to access management tools from anywhere in the world by just connecting from their smartphone offers businesses significant benefits.

3D Printing:

Often referred to as additive manufacturing, 3D printing is a prime example of a disruptive technology that is fundamentally altering long-standing industrial paradigms. Using digital design, 3D printing creates goods layer by layer, in contrast to traditional subtractive manufacturing, which entails carving material from a more important component. By dismantling boundaries and creating new opportunities, this revolutionary discovery has the potential to upend industries everywhere. This technology can be used by individuals, small businesses, and even amateurs to make complex and personalised items with minimal setup costs. 3D printing puts traditional design concepts to the test through prototyping. It reduces time to market, enhances innovation cycles, and enables rapid prototype fabrication, all of which speed up the iterative design process. Iterating and exploring greatly increases creativity while reducing the risks involved in traditional product development. On-demand manufacture is made possible by 3D, which also lessens the environmental effect and surplus inventory. Fundamentally, 3D embodies the ethos of disruptive technology by upending established manufacturing norms, democratising production, and encouraging innovation across sectors.

Internet of Things (IoT)

The term "Internet of things" refers to a network of physical items, or "Things," that are built with sensors, such as GPS, LDAR, and automatic vehicle locators (AVL), software, and other technologies to link and share information with other systems and devices online.

Big Data

Big data gathers, organises, and analyses vast amounts of data before applying it to a particular field. It is a clever analytical tool for productive and successful decision-making. This innovative technology gives businesses a significant competitive edge since it lowers expenses, saves time, lowers the possibility of process errors, and enhances the quality of the finished product. Big data can be generated and examined remotely or online with applications like cloud, edge, mobile, and nano computing. Source: a smartphone.

Cyber Security

Technology security, or cyber security, is the collection of procedures and instruments used to preserve data produced by any program, device, or business. Implementing security procedures is essential when using network systems, software, and apps to safeguard sensitive or private data.

Fingerprints

To protect copyright, a security mechanism called digital fingerprinting uses an electronic gadget to confirm a user's identity. In order to regulate the authorised copy of content, a set of bits is added to a media (such as a pen drive, DVD, or Bluray) that may identify unauthorised copies.

Platforms

Companies such as Uber and Bolt have used the Internet, smartphones, artificial intelligence, machine learning, and big data, along with a fresh perspective on workers (the gig economy), to create a new scalable product that is upending the taxi and transportation industries. Despite not having the typical attributes of their businesses (such as taxis or busex), these companies have caused disruptions (Ukata & Worgu, 2025). With the help of these social media platforms, brands may establish a connection with their audience in order to boost sales, generate a community of followers who will share and interact with the company's content, and build a brand. According to Ukata and Amini (2022) and Ukata, Kalagbor, and Ochie (2017), these are accomplished by using the five pillars of social media marketing in relation to social strategy when choosing social media platforms, goals, and content mix.

Disruptive Technologies as Strategic Tool for Enhancing Organizational Performance

Disruptive technologies have been discovered to have the ability to offer businesses more cost-effective and efficient services in terms of enabling business models. As an illustration, the advent of cloud computing has allowed businesses to lower the cost of both software and hardware while offering clients more adaptable and scalable services. The advent of mobile technology, like mobile banking, has also made it possible for businesses to reach a wider audience and offer more individualised services to their clients. According to Ukata and Amini (2025), the emergence of blockchain technology also opens up new avenues for SMEs by offering a decentralised, transparent, and safe platform for information sharing and transactional activities.

According to Koh, Orzes, and Jia (2019), SMEs are important because they can provide entrepreneurs with possibilities and meaningful jobs that are generally more gratifying than those in larger organisations. According to Kawano et al. (2020), SMEs help local economies, retain money close to home, and promote neighbourhood and community development. There are ramifications for SMEs' leaders, staff, and the broader communities they serve when they comprehend the elements that influence, adopt, and disrupt disruptive technologies in SMEs. Technology disruptors in small and medium-sized businesses (SMEs) replace current products and technologies with innovative products that generate new industries (Frizzo-Banker et al., 2020). Disruptive technology investments are at an all-time high as businesses devote a larger portion of their profits and retained earnings to innovation. Consequently, strategic management of disruptive technologies is becoming more and more popular.

Enhancing Organizational Performance

Technology has a significant impact on businesses and organisations all over the world, changing how they compete, function, and achieve success. It has also changed how companies engage with their clients, increased efficiency, and improved communication. Through social media, email marketing, and online advertising, among other creative and novel methods, digital technologies allow firms to connect with their clientele (Mekuri-Ndimele & Ukata, 2024a). Business procedures are now automated and efficient instead of manual and time-consuming due to the development of technology (Ruskin, 2024). Automation technologies and robotics, for instance, have made the production process more efficient. Artificial intelligence (AI) and software have also improved the efficiency of the supply chain process by predicting demand and streamlining operations. Additionally, social media has allowed businesses to establish more intimate connections with their clientele, which has improved client retention and engagement (Ruskin, 2024).

The goal of disruptive technology initiatives is to improve the organization's long-term financial success while also ensuring customer satisfaction, loyalty, and retention. Through the path of sustainable advantage, disruptive technologies are the primary tool for enhancing the company's financial performance. Superior long-term financial and market performance is the result of maintaining a positional advantage. Organisations must embrace and adopt solution-driven technologies, possess resourceful skills that make them valuable, unique among competitors, completely imitable, and devoid of a strategically equivalent substitute if they hope to achieve a sustainable competitive advantage. In order to obtain a competitive edge in attracting clients with effective and enhanced goods and services, businesses must fully recognise market value design that may provide clients with more unique offerings than rivals. Successful businesses are those that effectively adapt to the shifting market conditions by identifying market niches, inventing and positioning products for those niches, and generating business value by focussing on their goals and the expectations of 21st-century consumers. The anchor point for SMEs adopting disruptive technology initiatives should be a comprehensive business model transformation, as this calls for the involvement of numerous stakeholders without sacrificing customer expectations. Marketing managers play a critical role in helping businesses adopt sustainable marketing strategies, given that consumers are at the centre of all marketing efforts and that marketing is accused of relentlessly exploiting the planet's resources (Gilbert, 2017). Research and development, staff competency, and innovation capabilities are all areas where organisational success requires work. For SMEs to succeed in the long run, new product creation is essential.

Small and Medium Enterprises (SMEs)

Businesses with fewer than fifty employees are classified as small-scale businesses, and businesses with more than fifty but fewer than 250 employees are classified as medium-sized businesses. Small and medium-sized businesses are essential to the expansion of the Nigerian economy. Small businesses are defined as those that employ more than ten but not more than forty-nine people overall and have total assets (with the exception of property and buildings) of more than five million naira but less than fifty million naira. According to Ukata and Kalagbor (2020), medium-sized businesses are those with total assets (excluding land and buildings) of at least fifty million naira but not more than five hundred million naira and a workforce of fifty to ninety-nine employees. It was necessary to employ disruptive technologies in order to readily access and supply goods and services to meet the high demand of this market share group.

Statement of Problem

SME (small and medium-sized enterprises) appear to encounter difficulties in their pursuit of commercial success. It looks like disruptive technologies are the answer. It appears that many SMEs are aware of the disruptive technologies that should be used and how they relate to the performance of small and medium-sized businesses. This appears to have significantly hampered their capacity to achieve organisational performance, even though they are operating in a state that is rich in oil and has personnel from global corporations who may require their goods and services. Because of this, the researcher believes it is crucial to investigate disruptive technologies as a strategic tool for improving the organisational performance of small and medium-sized businesses. They also discuss how organisations can effectively address the challenge of disruptive technology in order to stay afloat and relevant in the business world.

Objectives of the Study

The main objective of this study is to examine disruptive technologies as strategic tool for enhancing organizational performance of small and medium enterprises (SMEs) in Rivers state. The specific aims of the study are:

- Find out the types of disruptive technologies for enhancing organizational performance of small and medium enterprises in Rivers state

- Find the relationship between disruptive technologies and organizational performance of small and medium enterprises in Rivers state

Research Questions

Based on the objective of the study, the following research questions were raised.

- What are the types of disruptive technologies for enhancing organizational performance of small and medium enterprises in Rivers state?
- What is the relationship between disruptive technologies and organizational performance of small and medium enterprises in Rivers state?

Research Hypothesis

The following Null hypotheses were formulated and tested at 0.05 level of significance:

- There is no significant relationship between the types of disruptive technologies and enhancement of organizational performance of SMEs in Rivers. state
- Significant relationship does not exist between disruptive technologies and organizational performance of SMEs in Rivers state.

Theoretical Framework

This study is anchored on the disruptive innovation and resource-based theories.

Disruptive Innovative Theory (DIT)

American scholar and business consultant Clayton Magleby Christensen developed this hypothesis. In his book published in 1997, he created the theory of "Disruptive Innovation." Because of his work on "The Innovator's Dilemma," which has been dubbed the most significant business concept of the early twenty-first century, the Economist dubbed him "the most influential management thinker of his time." According to this approach, businesses should create and implement technologies that will enable them to gradually enhance their operations over a controlled period of time and integrate them in ways that would enable them to retain the status quo or stay competitive.

Methodology

Correlational research design was used in the study. Rivers State's small and medium-sized businesses were the subject of the study. 223 employees of the SMEs that were the subject of the study made up the population; 194 (87%) of these employees responded, and the data was analysed. An instrument for gathering data was a structured questionnaire. To address the study objectives and assess the hypotheses developed at the 0.05 level of significance, Pearson's Product Moment Correlation (PPMC) was employed.

Result Presentation and Discussion

Table 1: Summary of Pearson Product Moment Correlation on types of disruptive technologies and enhancement of organizational performance of SMEs

Correlation			
		Types of Disruptive Technologies	**Enhancement of Organizational Performance of SMEs**
Types of Disruptive Technologies	Pearson Correlation	**1**	**.306*** **
	Sig. (2- tailed)		.000
	N	194	194
Enhancement of Organizational Performance of SMEs	Pearson Correlation	.306***	1
	Sig. (2- tailed)	.000	
	N	194	194

*** Correlation is significant at 0.05 level (2-tailed)

The Pearson Product Moment Correlation between disruptive technology types and improving SMEs' organisational performance is summarised in Table 1. It displays a moderately strong positive result (=306). With a p value of (P=0.000), it further demonstrates that disruptive technology types and the improvement of SMEs' organisational performance are significantly correlated. At the 0.05 level of significance, the null hypothesis was rejected.

Table 2: Summary of Pearson Product Moment Correlation on Disruptive Technologies and Organizational Performance of SMEs

Correlation			
		Disruptive Technologies	**Organizational Performance of SMEs**
Disruptive Technologies	Pearson Correlation	**1**	**.471*** **
	Sig. (2- tailed)		.000
	N	194	194
Organizational Performance of SMEs	Pearson Correlation	.471***	1
	Sig. (2- tailed)	.000	
	N	194	194

*** Correlation is significant at 0.05 level (2-tailed)

The result from table 2 shows the summary of Pearson Product Moment Correlation between Disruptive Technologies and Organizational Performance of SMEs with positive and strong of (t = .471). Since the is (P= .000) and less than 0.05, the null hypothesis two was rejected.

Discussion of Findings

The study's first finding indicates a strong correlation between the kinds of disruptive technologies and improving SMEs' organisational effectiveness. The results are in line with Khee et al. (2023), who believe that 5G technology, blockchain, cloud services, AI, and machine learning, among other things, are tremendously helpful to SMEs in managing their operations and succeeding. The study's second finding indicates that disruptive technologies and SMEs' organisational success were correlated.This study agrees with Palmie et al. (2020) and Anderson, Rainie, and Vogels (2021) who claim that disruptive technologies offer more cost-effective and efficient services, allow businesses to lower hardware and software costs, and give customers more flexible and scalable services. The rise of mobile technologies, like mobile banking, has allowed businesses to reach a wider range of customers and offer them more individualised services, and the rise of blockchain technology opens up new opportunities for SMEs by offering a decentralised, transparent, and secure platform for business transactions and information sharing.

Conclusion

Based on the study's findings and discussions, it was determined that SMEs that implemented disruptive technologies would succeed in their operations and maintain a large market share in Rivers State because there was a significant correlation between the types of disruptive technologies discussed and the improvement of SMEs' organisational performance.

Recommendations

Based on the findings from their study the following recommendations are made:

- In order for SMEs to stay relevant in the business world, they should be aware of the ways in which disruptive technologies are changing the global market and be ready to adapt to these changes appropriately.
- Since disruptive technologies improve organisational performance, SMEs should keep using them to succeed while bolstering their capacity by retaining and training their employees to use the technologies effectively.

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