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Original Article

Disruptive Technology Components and the Return on Investment of Selected Manufacturing SMEs in Lagos and Ogun States, South-West, Nigeria

[1]Ayodeji, O.T., [2]Akinlabi, H. B., [3]Makinde, G. O.
[1,2,3]Department of Business Administration and Marketing, School of Management Sciences, Babcock University, Ogun State, Nigeria.

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Abstract: *Manufacturing small and medium enterprises (SMEs) play significant roles in a global economy and provided several dynamic benefits that are critical for economic transformation. Despite these contributions, the gaps observed from the various studies are the lack of investigations on performance of manufacturing SMEs in developing nations and particularly in Nigeria, on the adoption of disruptive technologies and its effect on performance of manufacturing SMEs. Studies have shown that the performance of manufacturing SMEs have been meagre and, in some cases, very low due to poor capacity and technical know-how resulting in declining return on investment. The study investigated effect of disruptive technology (DT) on return on investment of selected manufacturing SMEs in Lagos and Ogun States, South-West, Nigeria. This study adopted a survey research design. The total population was 2603 owners-managers of manufacturing SMEs in Lagos and Ogun States, Nigeria. The study used Cochran (1977) formula to determine the sample size of 436. A simple random sampling technique with proportionate allocation was used to select the respondents. A structured and validated questionnaire was used for data collection. Cronbach's alpha reliability coefficients for the constructs ranged from 0.726 to 0.900. The response rate was 88.30%. Findings revealed that disruptive technology components had significant effect on return on investment (Adj.R2 = 0.842, F(6, 378) = 343.200, p < 0.05). The study concluded that disruptive technology improved return on investment of selected manufacturing SMEs in Lagos and Ogun States, South – West, Nigeria. It was recommended that the adoption of disruptive technology components such as technology investment, technology awareness, technology response, technology adaptation, technology transfer, and technology accessibility should be encouraged in order to improve the return on investment of SMEs.*

Keywords*: Disruptive Technology, Return on Investment, Technology Accessibility, Technology Adaptation, Technology Awareness, Technology Investment, Technology Response, Technology Transfer.*

I. INTRODUCTION

Manufacturing SME's contribute to job creation, rapid adaptation to new situations due to their flexibility, encourage entrepreneurship, product differentiation through boutique production, working as a sub-industry in larger enterprises, and generate investment capital at a higher rate than several other sectors of the economy while creating broader and more effective links among diverse sectors. The internet is a virtual route for the global spread of technological knowledge. Unfortunately, a huge number of developing countries remain walled off from the global village due to deterioration or scarcity of physical infrastructures that permit internet connectivity and utilization. Furthermore, the lack of suitable communication network infrastructures, as well as relatively expensive equipment costs that are out of reach for the great majority of the population, exacerbate the predicament of developing countries and confine them to low connectivity and limited technology dissemination. The problem is exacerbated further by the government's indifference and withdrawal of support in developing the infrastructures required to improve internet connectivity, possibly due to a lack of resources or a lack of vision required to assign appropriate priority to technological innovation (Akpan et al., 2022).

Manufacturing SMEs account for around 75% of employment in any country and 99% of all non-financial commercial companies (Olughor, 2015; Rotar et al., 2019). As a result, an important issue dominating worldwide policy debates has been how to generate economic growth through increased performance of these SMEs (Audrey & Jaraji, 2016). In recent years, the global business climate has become increasingly competitive and demanding, with small and medium-sized manufacturing enterprises frequently on the receiving end. Manufacturing businesses around the world face ongoing issues in maintaining consistent performance metrics over multiple years of business operation (Okusanya et al., 2021).

Undoubtedly, manufacturing SMEs' strategies for survival in the new normal and beyond, in the face of strong global competition imposed by the fourth industrial revolution (4IR), entail successful adoption of modern technology. While the

majority of white-collar employment have been automated as a result of 4IR and Covid-19 survival strategies, producing a double-disruption situation in the labor market (WEF, 2020), the exact impact of the 4IR paradigm on jobs is now unknown. The region desires a strong and globally competitive manufacturing sector for a sustainable economy, particularly during the 4IR period.

Big data, which is all the information that connected devices acquired over time, is one of the three technologies currently available to manufacturing SMEs synergies that have the ability to disrupt the status quo. The Internet of Things (IoT) is a network of devices (including smartphones) that have been outfitted with sensors that capture massive amounts of data. For data to be meaningful, it must be processed, and AI found a solution by applying algorithms to analyze data generated by Internet of Things devices and using it to replicate human activities (Seriun.co.uk, 2017).

Manufacturing SMEs have not seen considerable improvement in recent years, with capacity utilization hovering between 35% and 40%. Manufacturing SMEs contributed 12.87% of GDP in the fourth quarter of 2020 and 15.27% in the first quarter of 2021. The growth rate was 32.10% in the first quarter of 2021, which is 3.62% higher than the equivalent period in 2020 (National Bureau of Statistics, 2021). This is regarded too low for a country with enormous consuming power, such as Nigeria, which has an expected population of 211.4 million people as of 2021 (Ogunro, 2023). Investment in the sector's modernization and updating of production technology has been low, meaning that the majority of enterprises operating in the sector are most likely employing old manufacturing equipment. Industry 4.0 is unparalleled in comparison to other industrial revolutions due to the significant role its technologies play in wealth creation and socio-political stability (Günther et al., 2017; Schäfer, 2018).

However, the variables that sparked previous revolutions, such as diverse public and commercial initiatives, are now accelerating Industry 4.0 advancements (Gehrke et al., 2015). Other unique aspects that are important drivers for Industry 4.0 include rapid technical improvements and industrial organizations' desire for singularity. According to Bernard (2018), the industrial revolution driven by digital transformation in vertical and horizontal value chains, product and service offerings of the country's manufacturing SMEs embarking on an innovative mindset must be supplemented by further adoption of newer technologies known as disruptive technology (DT). The preceding clearly shows that disruptive technology may positively improve the industrial sector, allowing it to perform its critical role in Nigeria. This study was prompted by the need to assess the impact of disruptive technologies on the return on investment of some selected manufacturing SMEs in Lagos and Ogun States, South - West, Nigeria.

II. LITERATURE REVIEW

A) Disruptive Technology

Disruptive technology (DT) is a phrase used to describe an emerging technology from a specific and niche industry that becomes dominant, disrupting the stable-state of a market and frequently affecting and forcing out current leading and incumbent enterprises (Singh & Hanafi, 2019). Disruptive technology (DT) is a phrase invented and popularized in 1995 by Joseph Bower and Clayton Christensen. It also refers to the selection and/or adoption of innovations or cutting-edge technology that significantly modifies how firms operate. Disruptive technology, according to Smith et al. (2020), is an innovation that fundamentally disrupts the way customers, industries, or businesses work. A disruptive technology erodes the systems or behaviors it replaces because it has clearly superior characteristics. New technologies are frequently commercialized in a narrow niche. Some stay in their niche, while others move on to compete with existing technology in mainstream markets. A disruptive technology does not have to be better than those now available in the market, and it may do some harm to the general market by extending technology.

a. Technology Investment

An information technology investment (IT investment) is the use of IT resources to assist mission delivery and management. A project or projects for the development, modernization, augmentation, or maintenance of a single IT asset or group of IT assets with associated capabilities, as well as the subsequent operation of those assets in a production environment, may be included in an IT investment. While each asset or project has a defined life-cycle, an investment that encompasses a collection of assets aimed at supporting an ongoing corporate objective may not. The cost of agency resources, hardware, software, or outsourced services required to offer information technology services and launch approved information technology projects is referred to as technology investment (Chen et al., 2021). Technology investment is defined as an organization's commitment to acquire information technology facilities and capabilities in order to improve productivity, service delivery, and profitability (Aminu, 2019). Investments are considered as a vehicle for market success and the creation of new job possibilities, and are acknowledged as a strategic goal for the majority of industrial countries, particularly in the aftermath of the global economic crisis (Aldieri & Vinci, 2018).

b. Technology Awareness

Awareness is an action characteristic that refers to a person's being or being aware of something rather than some unique type of mental state that exists independently of action. We accept cues from individuals around us, which can impact our awareness and lead to a greater shared awareness. The ability of an individual to be aware and conscious of new and popular technology that has gained universal adoption throughout relevant industries or marketplaces is referred to as technological awareness (Rahimah et al., 2018). As a result, awareness precedes the stage of attitude formation in the diffusion of innovation. They also claimed that innovation diffusion theory (IDT) (Rogers, 1995) employed it as the first stage of a model of the invention dissemination process. This theory proposes that the dissemination of innovation involves two distinct actors: a corporation or organization that will embrace the innovation or new technology, and users or individuals who will employ the innovation or technology. IDT raises awareness through the lens of positive technology.

c. Technology Response

In today's rapidly changing business environment, organisations must be adaptable and swift to act. A response is an emotional reaction to a query, experience, or other stimulus. A response can take various forms, including an answer to a query, an emotional reaction, and a reply. It is extremely difficult for any organisation to identify disruptive new technologies and then devise an effective response. In an era of rapid technological advancement, a company's survival frequently depends on its ability to react quickly to an event. This trend has been mirrored by an increase in management research on the challenges organisations face during periods of disruption and how firms can adapt to disruption in recent years (Ansari et al., 2016; Volberda et al., 2018). Many organisations fail to respond to disruption despite the prevalence of this proposal (Khanagha et al., 2018), raising questions about the validity, viability, or limitations of such an internal fit perspective. Companies cannot investigate equally all potential disruption plans or opportunities; consequently, they must devise a prioritised investment plan for responding to digital disruption that is tailored to their organisation (Plummer et al., 2017).

d. Technology Adaptation

Technology adoption is the study of how people use technology and how well they accept it (Kee et al., 2021; Rubel et al., 2016). The way workers in an organization use technology and how it has changed or adapted are also part of technological adaptation. It was said that choosing a technology means more than just using the latest idea (technology adoption). Instead, organizations must be able to change their technology (technology adaptation) so they can talk to their customers and meet their needs (Kee et al., 2021). Three of the most important things about ICT are that it is used in many different parts of the economy, that it can get better over time and lower costs for users, and that it can help innovation by making it easier to research and develop new products, services, or processes (Mustafa, 2015). By using ICT, business leaders can improve operating efficiency, lower transaction costs, make it easier for suppliers to work together, reach more customers, and get a competitive edge on the global market (Mustafa, 2015).

e. Technology Transfer

Technology transfer (TT) is the process of communicating the results of scientific and technological research to the market and broader community, along with the accompanying skills and procedures, and is therefore an integral part of the technological innovation process. Moving beyond the conventional linear technology transfer style of extension requires a pragmatic and planned approach to agricultural extension service delivery. UNCTAD (2018) defines technology transfer as the migration of technical knowledge, data designs, prototypes, materials, inventions, software, and/or trade secrets from one organisation to another or for a different purpose. The passage of information between a technology holder and a technology user is the definition of technology transfer. It can be obtained through purchase, rental, lending, or licencing. There can be multiple parties involved in technology transfer. The most significant factors are innovators (technology creators), commercialization (businesses), and central government institutions (economic policy) (Yahaya & Bakar, 2017).

f. Technology Accessibility

The advancement of technology has brought convenience to people's lives, but it has also created challenges for those with disabilities. Disabled individuals face barriers to technology accessibility, which hinder their ability to access information and participate in society. According to Burgstahler (2003), technology accessibility is the "ability of individuals with disabilities to independently acquire and use information and communication technologies." The importance of technology accessibility for disabled individuals is significant as it helps them to overcome their limitations and have equal access to information and services. Technology accessibility allows individuals with disabilities to participate in online education, access healthcare services, and participate in the workforce. It also promotes social inclusion, which contributes to their emotional well-being and reduces the sense of isolation and exclusion. Therefore, it is imperative that technology developers consider the needs of disabled individuals when designing products or services. This

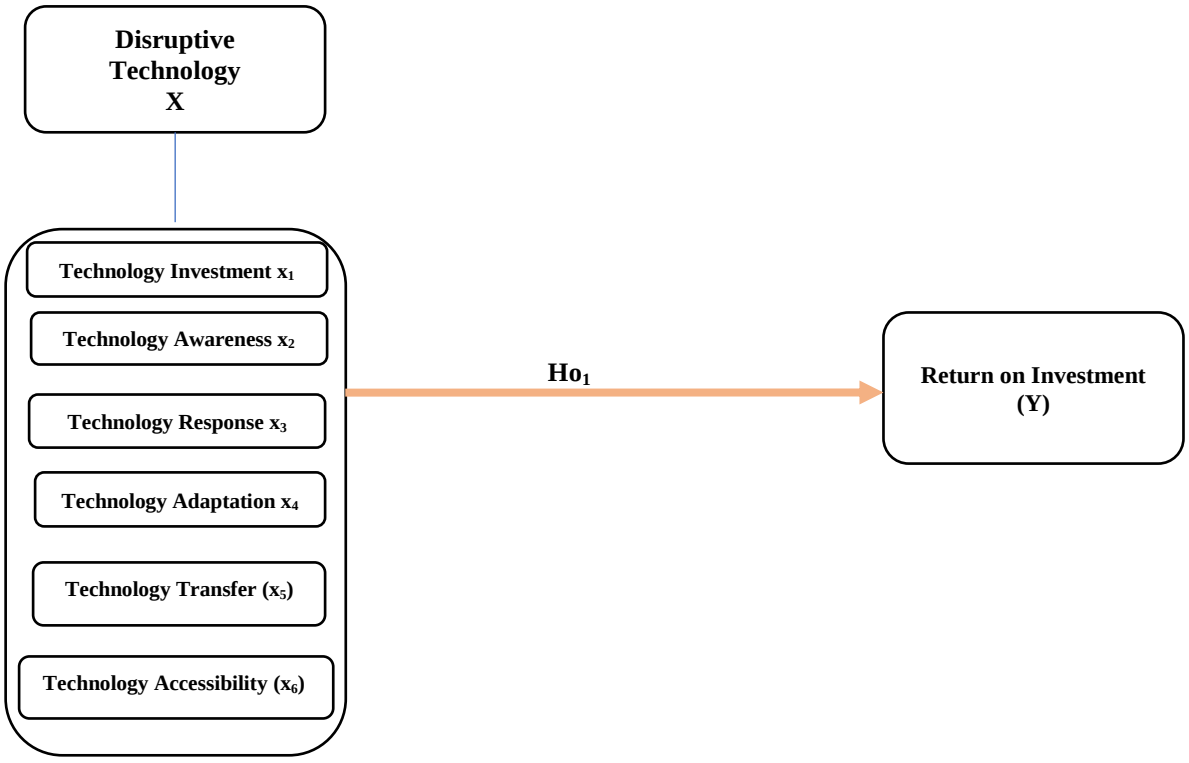
will ensure that the technology is accessible and usable by all individuals, regardless of their abilities or disabilities. In conclusion, accessibility to technology is crucial for disabled individuals as it has a significant impact on their daily lives.

As technology continues to advance, the issue of technology accessibility becomes increasingly important. However, implementing technology accessibility presents several challenges. JM Kuzma argues that one such challenge is the lack of awareness and understanding of accessibility requirements among developers and designers. Many developers and designers may not be familiar with the guidelines and regulations surrounding accessibility, which can lead to inaccessible technology for individuals with disabilities. Furthermore, Kuzma suggests that the rapidly changing nature of technology can also pose a challenge to implementing accessibility. As technology evolves, new accessibility issues may arise that were not previously addressed. Additionally, retrofitting existing technology to be accessible can be difficult and costly. Lastly, Kuzma notes that there is often a lack of resources devoted to accessibility implementation. Many organizations may not allocate sufficient funding or manpower to ensure that their technology is accessible to all users. Overall, the challenges of implementing technology accessibility highlight the need for increased awareness, education, and resources to ensure that technology is accessible to all individuals, including those with disabilities. (Kuzma, 2010)

B) Return on Investment

Return on Investment (ROI) is a financial metric used to assess the profitability of an investment by measuring the ratio of the net profit or loss generated by an investment to the total amount of capital invested. According to Kaufman and Watstein (2008), ROI is a crucial tool for decision-making in businesses and organizations, as it enables them to evaluate the effectiveness of their investments and make informed decisions about future investments. ROI can be calculated using various formulas depending on the nature of the investment and the information available. The most common formula used to calculate ROI is (Gain from Investment - Cost of Investment)/Cost of Investment, expressed as a percentage. A high ROI indicates that an investment is profitable, while a low or negative ROI indicates that an investment is not profitable and may need to be re-evaluated or abandoned. It is important to note that ROI should not be the sole metric used to evaluate an investment, as it does not take into account other factors such as risk, opportunity cost, and time value of money. Therefore, it is important to consider other metrics and factors when making investment decisions. According to Botchkarev and Andru (2011), the most widely used measurement metric in business analysis is return on investment (ROI).

C) Research Conceptual Model



Source: *Author's Research Model (2023)*

D) Empirical Review

Henry - Nickie et al. (2019) find that the IT industry influences the U.S. economy in multiple ways, most notably in terms of total corporate operations. Long-term, closing borders poses significant dangers to the IT industry, threatening innovation, competitiveness, and the ability to produce and sell goods and services. Choudhry and Ponzio (2020) found that there are additional indicators that practitioners, programme administrators, and policymakers can use to assess the effectiveness, efficiency, and return on investment of technology transfer initiatives.

According to the findings of Akinrinade (2020), there is a positive correlation between ICT investment and financial performance. In addition, empirical evidence demonstrates that the use of ICT has resulted in substantial variations in sales volume, profit before tax, profit after tax, and net asset/shareholders' fund. However, the use of ICT has not significantly altered the profitability per share of these companies. It went on to state that in order for ICT investments to have the desired effect, stakeholder groups must be fully committed by businesses. Tonkova et al. (2019) found that high-tech investments had positive "direct" economic effects and "transfer" effects with a stronger social component.

Direct results include decreased operational expenses, accelerated turnover through the automation of core tasks and the payment process, increased production/logistics profitability and return on investment, knowledge transfer, etc. A study of investment patterns in Bulgaria revealed that investments in advanced technologies enhanced the competitiveness of the local and national economies. Similarly, investments in information technology have an effect on enterprises (businesses) by enhancing their capabilities in areas such as decision-making, administration, operational and financial processes, and financial performance (Rabiu, 2019).

Based on the foregoing, the study thus hypothesized that:

H_{01}: Disruptive technology components have no significant effect on return on investment of selected manufacturing SMEs in Lagos and Ogun States, South-West, Nigeria.

E) Theoretical Framework

a. Diffusion of Innovation Theory

Sartipi (2020) states that the theory of diffusion of innovation (DOI) was initially introduced by French sociologist Gabriel Tarde in 1903 and later popularized by Everett Rogers (1962) as a means to elucidate the process of disseminating inventions. Rogers (1962) further popularized the diffusion of innovation theory to illustrate the impact of the rate of adoption of a new technology on a local economy. According to Rogers, the diffusion and adoption of new technologies will lead to an increasing return on investment until saturation is reached. The diffusion of innovation necessitates four variables: innovation, communication, social structure, and time (Cheng, 2017; Girardi & Chiagouris, 2018). These variables aim to explain the manner, reasons, and speed at which new ideas and technologies proliferate. Rogers (1995) defines the diffusion of innovation as the process through which innovation is communicated among members of a social system over time and through specific channels.

Therefore, the diffusion of innovation is a process that facilitates the spread of innovation from its origin or production to its ultimate user or adopter, and it occurs as a collective activity within society (Rogers, 2003). The approach of the diffusion of innovation focuses on how potential adopters perceive an invention in terms of its relative advantages or disadvantages. Thus, the innovativeness, complexity, compatibility, and relative advantage of an innovation contribute to the development of a framework within the diffusion of innovation approach. According to Rogers (1995), diffusion can be understood as a form of communication that specifically emphasizes the dissemination of novel ideas. Essential aspects of diffusion include the marketing, dissemination, and transfer of an innovation to individual end users.

According to Rogers' (1995) theory, the process of disseminating ideas, practices, or objects involves four essential components: (a) the innovation must be recognized as such, (b) it must be communicated through specific channels or communication channels, (c) it must be adopted by members of a social system, and (d) the time factor or duration must be considered. The study of innovation diffusion has aimed to elucidate the factors that determine why and how consumers adopt innovations. In line with the diffusion of innovation theory paradigm, consumers cannot be expected to adopt an innovation if they are unaware of its existence. Napier et al. (2000) suggest that information about the innovation plays a crucial role in promoting awareness and fostering a positive attitude towards it.

Due to its ability to provide a framework for examining the adoption of new technologies by individuals and organizations, the theory is highly relevant for studying the components of disruptive technology and their impact on return on investment (ROI). Through an exploration of the different stages of adoption, including innovators, early adopters, early majority, late majority, and laggards, researchers can gain valuable insights into the factors that influence the acceptance of

disruptive technology components. This understanding is crucial for evaluating the potential ROI associated with these devices.

III. METHODOLOGY

This study adopted a survey research design. The total population was 2603 owners-managers of manufacturing SMEs in Lagos and Ogun States, Nigeria. The study used Cochran (1977) formula to determine the sample size of 436. A simple random sampling technique with proportionate allocation was used to select the respondents. A closed ended questionnaire was adopted by the study. The items in the questionnaire were adapted from related previous literatures to collect data for the variables in the study. The primary data source was used in this study.

Table 1: Sources of the Adapted Questionnaire

Main Variables	Specific Main Variables	Sources of Instrument
Independent Variable: Disruptive Technology	Technology Investment	Ji, Yan and Yu (2019); Karhade and Dong (2021).
	Technology Awareness	Alaeddin and Altounjy (2018); Sharma et al., (2020).
	Technology Response	Prevost et al., (2018); Ahuja et al., (2014).
	Technology Adaptation	Kumar and Ayedee (2021).
	Technology Transfer	Handoko et al., (2019).
	Technology Accessibility	Horton (2021); Kulkarni (2019); Gould et al., (2019).
Dependent Variable	Return on Investment	Imani et al., 2020; Lai et al.,2020; Rangkuti et at., 2020).

Source: *Researcher's Literature Review (2022).*

The construct reliability was employed to evaluate the extent to which operationalisation of a construct measure what it intends to measure and nothing else. Cronbach's alpha was used to determine the internal consistency of the constructs. For the research instrument the Cronbach's alpha reliability fitness result is presented below:

Table 2: Shows the Internal Consistency Reliability Results

SN	Variables	Number of Items	Cronbach's alpha coefficient	CR	Remark
1	Technology Investment	5	0.847	0.768	Reliable
2	Technology Awareness	5	0.726	0.789	Reliable
3	Technology Response	5	0.810	0.746	Reliable
4	Technology Adaptation	5	0.787	0.758	Reliable
5	Technology Transfer	5	0.895	0.865	Reliable
6	Technology Accessibility	5	0.785	0.825	Reliable
7	Return on Investment	5	0.810	0.832	Reliable

Source: *Computed from Pilot study, (2022)*

Model Specification

$Y = f(X)$

Y = Dependent Variable (Return on Investment)

X = Independent Variable (Disruptive technology)

Y = Return on Investment (ROI)

X = Disruptive technology (DT)

$X = (x_1, x_2, x_3, x_4, x_5, x_6)$

Where:

X = Disruptive technology (DT)

x_1 = Technology investment (TI)

x_2 = Technology awareness (TA)

x_3 = Technology response (TR)

x_4= Technology adaptation (TAD)

x_5 = Technology transfer (TT)

x_6 = Technology accessibility (TAC)

The model formulated for the hypothesis is written as:

Hypothesis One

$$ROI = a_0 + \beta_1 TI + \beta_2 TA + \beta_3 TR + \beta_4 TAD + \beta_5 TT + \beta_6 TAC + \varepsilon_i \text{ ---------- Regression eqn. 1}$$

IV. DATA ANALYSIS AND RESULTS

436 questionnaires were distributed before the retrieval of 385 questionnaires which represented approximately (88.3%) returned and found usable for the analysis. Approximately 11.7% of the copies administered were not returned and some were incompletely filled, hence judged as invalid and unusable for the analysis. 436 copies of questionnaire were distributed to the respondents of which 385 copies of the distributed questionnaires were duly filled and returned which was used for the analysis. This represented a response rate of about 88.3% of the population employed in the study, which was considered an excellent response rate according to Holtom et al., (2022).

Table 3: Summary of Multiple Regression Analysis for the Effect of Disruptive Technology Components on Return on Investment.

N	Model	B	Sig.	T	ANOVA (Sig.)	R	Adjusted R^2	F (6, 378)
385	(Constant)	0.795	0.079	1.761	0.000^b	$.919^a$	.842	343.200
	Technology Investment	0.266	0.000	5.773				
	Technology Awareness	0.165	0.000	3.796				
	Technology Response	-0.096	0.064	-1.858				
	Technology Adaptation	0.154	0.002	3.142				
	Technology Transfer	0.174	0.002	3.172				
	Technology Accessibility	0.308	0.000	5.756				
	Predictors: (Constant), Technology Investment, Technology Awareness, Technology Response, Technology Adaptation, Technology Transfer and Technology Accessibility.							
	Dependent Variable: Returns on Investment							

Source: *Author's computation, 2023 underlying data from Field Survey*

The results of the multiple regression analysis for the disruptive technology component's impact on returns on investment in Lagos and Ogun States, South – West Nigeria, were presented in Table 3. The results revealed that technology investment ($\beta = 0.266$, $t = 5.773$, $p<0.05$), technology awareness ($\beta = 0.165$, $t = 3.796$, $p<0.05$), technology adaptation ($\beta = 0.154$, $t=3.142$, $p<0.05$), technology transfer ($\beta = 0.174$, $t=3.142$, $p<0.05$) and technology accessibility (($\beta = 0.308$, $t= 5.756$, $p<0.05$),) had a positive and significant effect on returns on investment. In contrast, the technology response (= -0.096, $t = -1.858$, $p>0.05$) had a negative and insignificant impact on the returns on investment of selected manufacturing SMEs in Lagos and Ogun States, South – West, Nigeria. This indicated that, with the exception of technology response, all of the other components of disruptive technology are significant factors in manufacturing SME firms, resulting in an increase in investment returns.

The R value of 0.91 indicated that the relationship between disruptive technology components and returns on investment of selected manufacturing SMEs in Lagos and Ogun States, South – West Nigeria, was extremely positive and statistically significant. The coefficient of multiple determination AdjR2 = 0.842 revealed that the components of disruptive technology accounted for 84.2% of the variance in the returns on investment of selected manufacturing SMEs, while the remaining 15.8% was accounted for by other variables not included in the model. The predictive and prescriptive multiple regression models were thus expressed:

$$\mathbf{ROI = 0.795 + 0.266TI + 0.165TA - 0.096TR + 0.154TAD + 0.174TT + 0.308TAC + U_i} \quad \text{--- Eqn(i) (Predictive Model)}$$

$$\mathbf{ROI = 0.795 + 0.266TI + 0.165TA + 0.154TAD + 0.174TT + 0.308TAC + U_i} \quad \text{-- Eqn(ii) (Predictive Model)}$$

Where:

ROI = Return on Investment
TI = Technology Investment
TA = Technology awareness
TR = Technology response
TAD = Technology adaptation
TT = Technology transfer
TAC = Technology accessibility

Return on investment would be 0.795% if disruptive technology was held constant at zero, according to the regression model, which is positive. In the predictive model, it was determined that, with the exception of technology, the response of all other variables was positive and statistically significant; consequently, the management of manufacturing firms must give priority to the variables included in the prescriptive model. When technology investment, technology awareness, technology adaptation, technology transfer, and technology accessibility are each improved by one unit, the return on investment increases by 0.266, 0.165, 0.154, 0.174, and 0.308%, respectively. This suggested that an increase in technology investment, technology cognizance, technology adaptation, technology transfer, and technology accessibility would result in an increase in the rate of return on investment of the selected manufacturing SMEs in Lagos and Ogun States, South - West, Nigeria. In addition, the F-statistics (df = 6, 378) = 343.200 at p = 0.000 (p0.05) indicated that the overall model was significant and positive in predicting the effect of disruptive technology on return on investment, indicating that disruptive technology components orientation, particularly technology investment, technology awareness, technology accessibility, technology adaptation, and technology transfer, were significant determinants in the return on investment of selected manufacturing firms. To increase return on investment, the results suggested that manufacturing firms should devote more resources to developing the components of technological disruption, with a focus on technology investment, technology awareness, technology accessibility, technology adaptation, and technology transfer. Therefore, the null hypothesis (H01) was refuted, which stated that disruptive technology components had no significant effect on return on investment of selected manufacturing SMEs in Lagos and Ogun States, South-West Nigeria.

V. DISCUSSION OF FINDINGS

The hypothesis was tested, and it was found that disruptive technology components had a significant impact on the return on investment of selected manufacturing SMEs in Lagos and Ogun States, South-West Nigeria. The findings of this research were empirically consistent with the findings of Stores et al. Adeniran et al. (2019) found that all the returns on investment components have contributed to a 16.3% variation in the manufacturing company's returns on investment as a result of the just-in-time strategy (JIT) impact. This has been identified as a significant tool for monitoring the just-in-time strategy's effect on returns on investment. Tonkova et al. (2019) found that high-tech investments led to positive "direct" economic effects and "transfer" effects with a stronger social character, IT investment, and ROI. Similarly, Henry - Nickie et al. (2019) discovered that the IT industry influenced the U.S. economy in numerous ways, most notably in terms of total corporate operations. Long-term, closing borders posed grave dangers to the IT industry, diminishing innovation, competitiveness, and the ability to produce and sell goods.

Kisonzo (2017) found that not all investments in information and communications technology (ICT) positively correlated with organisational performance (OP) in significant Kenyan non-profits. In reality, there is little correlation between investments in certain ICT systems and organisational success. ICT investments comprised a significant portion of an organization's operating expenditure; furthermore, ICT enhanced the efficiency of decision-making rather than directly affecting OP. The extent and profundity of the positive relationship between ICT investments and organisational performance remained unknown (Kisonzo, 2017), despite widespread agreement on its existence. Similarly, the current economic crisis in the United States has caused many manufacturing companies to close their doors due to high production expenses, especially inventory-related costs, which have a negative impact on the return on investment of manufactured goods (Adeniran et al., 2019).

According to Agostini and Nosella's (2020) study, adopting the fourth industrial revolution will require a vast quantity of investment, estimated to reach €140 billion annually in Europe by 2020. Moeuf et al. (2018) demonstrated that implementing I4.0 projects in SMEs was still a cost-driven initiative and that the business transformation benefits had yet to be demonstrated, while Stores et al. (2018) concluded in their study that the correlation between IT investment and return on investment was not statistically significant.

Choudhry and Ponzio (2020) found that practitioners, programme administrators, and policymakers could use additional indicators to assess the efficacy, efficiency, and return on investment of technology transfer initiatives. In addition, Akinrinade's (2020) research revealed a robust relationship between ICT investment and financial performance. In addition, empirical evidence demonstrated that the use of ICT led to a substantial difference in sales volume, profit before tax, profit after tax, and net asset/shareholders' equity. However, the use of ICT had not significantly altered the earnings per share of these companies. In order for organisations to accomplish the desired impact from ICT investments, stakeholder groups must be highly committed, according to the report.

Theoretically, this study's findings supported the theory of disruptive innovation. According to the theory of disruptive innovation, as competition intensified, businesses strived to increase their return on investment by offering superior products to attract more market consumers. However, performance benefits occurred more rapidly than anticipated client requirements, resulting in disruptive innovations. The disruptive innovation theory seeks to stimulate the creativity of businesses by

identifying process and structure enhancements to bring new ideas and products to market, thereby increasing returns on investment.

VI. CONCLUSION AND RECOMMENDATION

The study concluded that disruptive technology improved return on investment of selected manufacturing SMEs in Lagos and Ogun States, South - West, Nigeria. By implementing disruptive technologies, these manufacturing SMEs were able to enhance their ROI. These technologies likely brought about improvements in efficiency, productivity, cost reduction, or customer satisfaction, leading to better financial outcomes for the businesses. This positive impact on ROI can contribute to the growth and competitiveness of these SMEs in the Nigerian manufacturing sector.

It was recommended that the adoption of disruptive technology components such as technology investment, technology awareness, technology adaptation, technology transfer, and technology accessibility should be encouraged in order to improve the return on investment of SMEs.

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