

IMPACT OF DISRUPTIVE TECHNOLOGIES ON BUSINESS ORGANISATIONS (SMALL AND LARGE) IN NIGERIA.

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ABSTRACT

The term disruptive technologies refer to destroying or disturbing attributes and commonly used in an envisioned where companies lost their market dominance and ceased to exist. Furthermore, disruptive technologies are those that result in a significant change in the cost of, or access to, products or services that dramatically changes how we gather information, make products, or interact. They are largely enabled by the dramatic increases in computing capacity and Internet bandwidth that has made their diffusion exponentially faster. The broad and accelerating availability of disruptive technologies to citizens, consumers, and businesses has been a defining feature in recent years, with new services and markets emerging and spreading rapidly across populations and industries. These technology breakthroughs combined with increased connectivity are impacting the way individuals, businesses, and governments generate data and interact to create markets, unlock economic transactions, mobilize activity, and deliver services. Disruptive technologies have enormous potential to enhance the underlying economics of specific business processes, to drive higher productivity, make workflows more efficient, speed up the supply chain and transform the back office. Disruptive technology such as: internet of things, computer clouding, artificial intelligence, advanced robotics and 3D printing has altered the way of doing things already in field like education, hospitalities, transportation, banking, healthcare amongst others that makes frequent advancements. This study evaluates how disruptive technologies affect organisations in Nigeria.

Keywords: *Disruptive Technology, Artificial Intelligence, Advanced Robotics, Cloud Computing, 3D Printing Technologies, Internet of Things,*

INTRODUCTION

Organizations strive to adapt quickly to a changing environment in which rapid technological progress increases competitive pressures (Lohapan, 2021), while also creating a rich set of opportunities that encourage organizations' behavior toward promoting organizational innovation, which is reflected in their product, marketing, and process (Sung & Kim, 2021), and it focuses on customers to earn profits and stay in the future (Al-Hawamdeh & Aishaer, 2021).

Disruptive technologies entail continuously producing new technologies (Aghion & Howitt, 1990) while constantly destroying current ones (Buhalis et al., 2019; Rodriguez, 2016; Priyashantha, et al., 2022). Current disruptive technologies that has influenced human resource management include Artificial Intelligence (AI), Robotics, Internet of Things (IoT), Autonomous Vehicles, 3D Printing, Nanotechnology, Biotechnology, Materials Science, Energy Storage and Quantum Computing (Schwab, 2016). These are recognized as important driving forces for commercial activities (Gupta & Saxena, 2012), and they have greatly impacted the ways of doing business (Priyashantha, et al., 2022).

Disruptive technologies have the potential to impact growth, employment, and inequality by creating new markets and business practices, needs for new product infrastructure, and different labor skills. According to the World Economic Forum (LLC) (2019) state that advance industrial technologies had a significant change in the way people work, live their lives and communicate to each other. It fundamentally represents a new era in human development, enabled by extraordinary technology advances commensurate with those of the first, second and third industrial revolutions. Lagos

Chamber of Commerce and Industry (2018) delineates that Nigeria would derive huge economic benefits by keenly introducing more sophisticated and outstanding technological outlets and platforms to their means of operations in the country. Hence, the manufacturing sector of the economy depends so much on diverse advance technologies for manufacturing of suitable economic goods and services (Ayodele and Falokun, 2003).

Technology has, in the last two decades in particular, witnessed rapid advancement, with ground-breaking and disruptive innovations which continue to challenge and transform the 'traditional' ways of doing things. This development underscores the concept of Disruptive Technology (Olorundare et al., 2017). The new technologies have made life generally more convenient, easier, cheaper, timely and faster, but often come with resultant risks and consequences such as loss of jobs, reduced revenue and/or annihilation of the affected industries and companies. They also come with certain positives however, such as opening up new business opportunities particularly in services (Iyanda, 2016). Technology affects practically every facet of human life and for this reason, it is important to understand how society and law respond to technological disruptions when they occur. Whilst technology and law have a dynamic feature which makes them evolve with the society, law has been described as an instrument of social engineering. Consequently, as technologies advance, the law correspondingly changes its substance to ensure that the society is not adversely affected by the inevitable social and market frictions that can result from the new technology (Muharam et al., 2020). This check is achieved through passing new legislations and regulatory activism.

In the service sectors for instance, firms leverage digitally to competitiveness on the nature of innovation that can provide real-time solutions, handle and predict customer behaviour in an incredible fast manner, and deliver best customer experience. This is just the beginning as technology continues to redefine possibilities in businesses. The possibilities of billions of people connected by mobile devices, with processing power, storage capacity, and access to knowledge, are unlimited, and these possibilities will be multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, quantum computing (Wigwe, 2021; Ayodotun et al. 2021) and big data analytics.

Disruptive technologies have a transformative impact on industries and economic development, as well as on the ways that technological innovation evolves and spreads through emerging markets, which tend to adopt and adapt technologies developed elsewhere. Also, it is inevitable that some emerging markets will harness disruption more rapidly than others (Bayo & Red-Well, 2020).

Clearly, the technological advancement that has greeted the Fourth Industrial Revolution are having a major impact on ways of serving existing needs on the supply side, as consumers now have access to global digital platforms for research, development, marketing, sales, and distribution of their products and by-products. On the demand side, the abundance of information, transparency, consumer engagement, and new patterns of consumer behaviour compel consumers to be rational in their choice of product that guarantees satisfaction. A key takeaway for consumers is that the emergence of global platforms orchestrated by disruptive technologies and other new business models means that patronage will be anchored on organisations that renders premium value. Hence, consumers must deliberately, relentlessly, continuously and wholistically patronize supermarkets that has witnessed advanced advancement. Therefore, the purpose of this paper is to examine how disruptive technologies affect organizations such as banking, universities, health care, hospitality amongst others.

REVIEW OF RELATED LITERATURE

The Concept of Disruptive Technology

Any technology that dislodges an established technology by creating a completely new industry is disruptive. Disruptive technology creates new market and reshapes existing ones thereby giving customers and end users the greatest level of access, empowerment, convenience, choice and

value. The focal point of disruptive technology is to challenge established business models and radically transform products and services (Evans, 2017).

The term disruptive technologies refer to destroying or disturbing attributes and commonly used in an envisioned where companies lost their market dominance and ceased to exist (Bayo & Red-Well, 2020). Furthermore, disruptive technologies are those that result in a significant change in the cost of, or access to, products or services that dramatically changes how we gather information, make products, or interact. They are largely enabled by the dramatic increases in computing capacity and Internet bandwidth that has made their diffusion exponentially faster. The broad and accelerating availability of disruptive technologies to citizens, consumers, and businesses has been a defining feature in recent years, with new services and markets emerging and spreading rapidly across populations and industries. These technology breakthroughs combined with increased connectivity are impacting the way individuals, businesses, and governments generate data and interact to create markets, unlock economic transactions, mobilize activity, and deliver services (Bayo & Red-Well, 2020).

A disruptive technology is one that displaces an established technology and shakes up the industry or a ground-breaking product that creates a completely new industry (Odey & Ebri, 2022). In business theory, a disruptive innovation is an innovation that creates a new market and value network and eventually disrupts an existing market and value network, displacing established market-leading firms, products, and alliances. Any technology that dislodges an established technology by creating a completely new industry is disruptive. Disruptive technology creates a completely new market and reshapes existing ones thereby giving customers and end users the greatest level of access, empowerment, convenience, choice and value (Odey & Ebri, 2022). The focal point of disruptive technology is to challenge established business models and radically transform products and services (Evans, 2017). The term "Disruptive Technology", was first introduced by Joseph Bower (Harvard Professor) and Clayton Christensen (a businessman), in 1995 in their article titled-Disruptive Technologies: Catching the Wave. They described "Disruptive Technologies" as technologies that depart fundamentally from existing ones, usually by being less complicated, more accessible, and less expensive. They explained that one of the most consistent patterns in business is the failure of leading companies to stay at the top of their industries when technologies or markets change. In order to remain at the top therefore, they must look beyond satisfying small or emerging markets and focus on new technologies that meet the functional demands of mainstream customers (Cheeseman et al., 2020, Odey & Ebri, 2022).

The concept was further espoused by Clayton Christensen in his book *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, published in 1997. The book demonstrates how successful, outstanding companies can do everything "right" and still lose their market leadership or even fail, as new, often unexpected competitors rise and take over the market (Christensen, 1997). Clayton categorized new technology into two: sustaining and disruptive. Sustaining technology relies on incremental improvements to an already established technology, whilst disruptive technology lacks refinement, often has performance problems because it is new, appeals to a limited audience and may not yet have a proven practical application. (Brand Genetics, 2013) explained that large corporations are designed to work with sustaining technologies for a number of reasons: they know their market; stay close to their customers; and have a mechanism in place to develop existing technology. Conversely however, they have trouble capitalizing on the potential efficiencies, cost-savings, or new marketing opportunities created by low-margin disruptive technologies (Odey & Ebri, 2022).

Many researchers have developed dimensions of disruptive innovations to include (data analytical, cloud and mobile, robotics and 3D printing (Bayo & Red-Well, 2020). The McKinsey Global Institute (MGI) has identified 12 forms of disruptive technologies which exhibit the greatest economic impact and potential to cause disruption by 2025: mobile Internet, automation of knowledge work (artificial intelligence, AI), the Internet of Things, cloud technology, advanced robotics, autonomous and near autonomous vehicles, next generation genomics, energy storage, 3-D printing, advanced materials,

advanced oil and gas explorations, and renewable energy (Manyika, 2013). Therefore, this present study adopts using three criteria such as artificial intelligence and advance robotics

Dimension of Disruptive Technology Artificial Intelligence

According to Tambe et al. (2019), AI is being hinted as a useful tool for human resource management (HRM). AI implementations in HRM-related areas, including as recruiting and selection, are becoming more common and have significantly decreased the time and expense associated with carrying out these operations (Kshetri, 2021). In order to compete in the global market, practitioners have observed that HRM must embrace AI (HRPA, 2017). Many jobs that were once thought to be "human" and require human cognition can now be handled by machines powered by AI. Machines can, for example, recognize intricate patterns, combine data, come to conclusions, make predictions, or carry out problem-solving tasks (Agrawal et al., 2019; Brynjolfsson & McAfee, 2017). Thus, we are interested in how these AI-based applications change how we innovate and allow for better and more efficient innovation management. AI systems use machine learning algorithms that demand and process vast amounts of data (Brynjolfsson & McAfee, 2017). They can recognize problems, opportunities, and threats above and beyond local search routines and knowledge domains, which may be helpful to discover and generate new ideas (Haefner et al., 2021). AI offers promising methods for idea and opportunity generation, especially by identifying relevant consumer needs and problems. AI provides further information to generate novel ideas in at least two different ways. In the first, smart algorithms, using extensive training data and existing rules, supported by ever-increasing information-processing power, make it possible for AI systems to provide valuable insights to generate novel ideas by exploring solutions much more efficiently (Haefner et al., 2021). As a consequence, novel insights are generated by solving previously unsolvable problems.

Artificial Intelligence (AI) and other breakthrough technologies are developed and used more widely by companies, employees, and customers in a fundamental way, and the administrative parts of HRM activities and tasks are becoming more and more automated (Lariviere et al., 2017; Marler & Parry, 2016; Sharma & Singh, 2016). AI enables the computer to perform numerous human resource tasks that typically require cognitive process, such as analytical decision-making (Vrontis et al., 2021).

Big Data Analytics

According to Kung, et al. (2015), big data analytics is an organization's capability of acquiring, storing, processing, and analysing large quantities of data in different forms, and delivering required information to the related users thereby allowing organizations in extracting value from big data in a timely manner. The resources of big data are considered to be a combination different resources of Information Technology, complementary in nature, which are relevant in utilizing big data to improve the performance of the concerned organizations. Shuradze and Wagner (2016), defined big data analytics capability as the organizational capability in mobilizing and deploying resources which are related to data analytics, together with resources and capabilities for marketing, which comprise an innovation focused IT capability leading to enhancement in organizational performance. Big data analytics in HR is defined by Marler and Boudreau (2017) as an HR practice that is enabled by information technology to mine data using statistical, descriptive, and visual analyses related to HR processes, human capital, and organisational performance to establish business impact for decision-making that is data-driven. In simple terms, Human Resource analytics is a tool to help HR Practitioners make more informed decisions and to create value for organisations. According to Handa and Garima (2014), Human Resource Analytics refers to the use of both qualitative and quantitative data to gain insights and support people management through effective decision-making processes. HR analytics simply is collecting, manipulating, and reporting data through the use of information technology. Heuvel and Bondarouk (2017) also posit that HR analytics is about identifying and quantifying people drivers systematically for better decision making on business

outcomes. This means that, being able to analyse data related to human resources to make decisions in a systematic way.

3D Printing Technologies

3D Printing is a technology utilized to create three dimensional (3D) objects out of various materials with the assistance of a computer program and specialized machines that deposit materials one layer at a time until they form a three dimensional object (Mertz, 2013). There are multiple methods of this execution with media ranging from plastics to metals; however, as technology advances living cells are quickly becoming integrated. There is variation among the speed, amount of layers, and size of the printing capabilities of the machines, but they all create 3D objects by printing small layers one at a time and fusing them together (Mertz, 2013). Several innovative new techniques and materials have led to advancements in 3D printing that relate to its use in health care. To date, 3D technology has been exclusively used for skeletal support and replacement, such as 3D printed knee and hip replacements, 3D printed teeth fillings, and even so far as replacing skull portions (Gross, et. Al, 2014). 3D printing is an ideal technology for joint and bone replacements since the model that is printed can have natural bone porosity integrated into the design. Additionally, each piece can be specialized and individualized (Xiao, et al., 2017; Gross, et al., 2014).

Advanced Robotics.

One of the greatest advancements in technology, is the use of robotics to perform most of the human tasks across all walks of life, be it in manufacturing, medicine, judiciary and in telecommunications, among others. Robots that have more sensory capacities than humans are being developed today to assist human in performing most of the human tasks, through AI.

Based on the excess memory it has, it can study human behaviour in order to perform human tasks perfectly. Robots are known to interface with human as front desk machine that could provide answers to any questions raised in seconds, since it has inbuilt memory with excess capacities.

In most cases, robots are used to perform human tasks in the factory like processing and packaging in manufacturing and assembling factories. Although many have argued that robotics, through Artificial Intelligence, will take away human jobs and create unemployment for the citizens, but technology experts have said robots would only complement human efforts and create new forms of jobs for citizens, since the robots are controlled by humans. The bottom line, according to technology experts, is the ability to achieve work efficiency, scalability and profitability.

Software named as robot captures and interprets the customer requirements and initiates operations across multiple digital systems. Robots can be described as intelligent physical devices with programmed autonomy, mobility, and sensor ability to perform certain human tasks, or intelligent machines acting like humans to perceive, learn, memorise, reason, and solve problems through machine learning, deep learning, or natural language processing (Russell et al., 2016). Robots can interpret and learn from external data for predefined goals and tasks (Kaplan & Haenlein, 2019).

Robots have now uncovered all the industries for numerous applications, even in helping humans at home to perform daily chore activities (Bayo and Red-well, 2020). The largest manufacturers such as Apple firm plan to replace workers with nearly one million robots in recent years (Moran, 2011). Companies and small factories would be able to realize profit by saving costs with the introduction of automated business operations (Bogue, 2009).

Modern robot designs can become agent-based models (ABMs) that can be connected to other robots as well as to a wider network made up of humans and machines. This trend is already gaining momentum. Robots and humans work together daily in advanced space systems. Museum visitors may be accompanied by robot tour guides, and some hospitals have already used robot assistants. People, especially those who are frail or aged, will be able to receive help through ABMs soon. In advanced industrial plants, robots will increasingly work as part of a human-agent team (Tresa et al., 2021).

Cloud Computing

Cloud computing is a recent revolution in information and communication technology. Cloud computing is one of the most promising information technology innovations in today's technological world (Chux-Nyeche, Asingbi & Wokeh, 2021). The trend is enabled by the rapid development of high speed internet connectivity occasioned by breakthrough in digital technology. Cloud computing is a technology that uses the internet and central remote servers to maintain data and applications and provided as a service and on-demand to clients. Cloud computing allows consumers and businesses to use applications without installation and access their personal files at any computer with internet access. This technology allows for much more inefficient computing by centralizing storage, memory, processing and bandwidth. A simple example of cloud computing is Yahoo email, Gmail, or Hotmail etc.

Murley (2009) defined cloud computing as an emerging architecture by which data and applications dwell in cyberspace, facilitating access to users through any web-connected device. According to Cervone (2010), cloud (common location, independent, online utility on demand) Computing takes the concept of virtualization even further and adds a couple of additional twists as well. He maintains that cloud computing offers an organization the great flexibility and stability to satisfy computing requirements for multifarious needs.

Cloud computing refers to a large scale distributed computing paradigm that is driven by economies of scale in which a pool of abstracted, virtualized, dynamically scalable managed computing power, storage, platforms and services are delivered on demand to external customers over the Internet. As a specialized distributing computer paradigm, cloud computing has the following features: it is massively scalable; can be encapsulated as an abstract entity that delivers different levels of services to customers outside the cloud; driven by economics of scale; and the services can be dynamically configured (via virtualization or other approaches) and delivered on demand (Goldener, 2015). According to the National Institute for Standards and Technology, NIST (2011), cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

Elnaz, Tania and Baharak (2014) opined that cloud computing has significant effect on organisational performance as it has the potentials to increase efficiency and cost savings through expanding the flexibility of an organisation's assets and decreasing cost of storage. This means that Cloud computing enables organizations to reduce their hardware costs, that is, instead of investing huge amount of money in a large number of powerful servers, organizations can use the cloud computing power to replace or improve the internal computing resources.

Cloud computing is a paradigm shift for distributed applications and infrastructures that can be accessed through any mobile device with Internet access (Alotaibi et al., 2021). This provides HR leaders with the opportunity to carry out their tasks on an ongoing basis (Cai & Chen, 2021). However, the lack of leadership support may limit the adoption of cloud computing in human resources, but cloud-based computing services can be used to reduce time and capacity constraints, reduce costs and provide anytime, anywhere connectivity, and scalability without responsibility for Maintenance or updates (Rader, 2012). Sanjeev and Natrajan (2020) note that small and medium-sized businesses can benefit from lower capital expenditure when embracing cloud computing in human resource management (Ahmed & Omar, 2015).

Cloud Computing represents a fundamental shift in the delivery of information technology (IT) services that have permanently changed the computing landscape. The main idea behind Cloud Computing is to consolidate and manage computing resources in higher education institutions, make them available to users anywhere and move maintenance and operational management burdens away from the enterprise to a third party.

In simple terms, a cloud computer is a combination of computing technology and a platform that provides holding and storage servicing through the cyber space. Innovations appear at many levels when adopting cloud computing, including operational innovations, business process innovations,

and market innovations (Willcocks et al., 2013). Additional benefits of cloud based computing include efficient use of resources, instant scalability, no hardware or software maintenance, security, and data recovery (Cai & Chen, 2021). Cloud-based human resource management also enhances the ability to adapt to change by considering it inevitable. This is because change needs to make an effort to deal with it and requires finding innovative means, tools and methods, and then the change works to develop the ability to innovate in methods, form and content (Xu & Mahenthiran, 2021).

Internet of Things (IoT)

The IoT is an evolving heterogeneous idea of networking that aims to influence the modern environment today significantly. IoT's central vision is to combine a vast range of intelligent artifacts towards interconnected and interconnecting networks, rendering the Internet much more all-embracing (Chen, Wan & Li, 2012). It is a modern model in which every system communicates in a seamless world, irrespective of its scale, calculation capital, and network connectivity. It allows apps to be intelligent through detecting, utilizing data, and determining behavior, mostly without human interference. IoT-enabled devices expand exponentially, including portable equipment, kitchen equipment, connected vehicles, and health equipment (Akyildiz, et al., 2015). Also, IoT and other supporting technology will significantly impact information collection for applications such as environmental monitoring, wellbeing, and security in broader geographical regions. Doukas and Maglogiannis (2012) emphasized that the introduction of IoT habitats in every geographical region enables many artifacts. A vast number of linked machines share a massive volume of data in these networks, contributing to Big Data's development, a connected computer. The connected device-based data is essential to the smart city paradigm because it can provide useful information to allow expert IoT systems (Frumkin, et al., 2008). The IoT Architecture focused on a range of capable platforms, including WLAN, Cloud Storage, Mechanical Learning and Peer Networks.

Next-Generation Genomics

Next-generation genomics marries advances in the science of sequencing and modifying genetic material with the latest big data analytics capabilities. Today, a human genome can be sequenced in a few hours and for a few thousand dollars, a task that took 13 years and \$2.7 billion to accomplish during the Human Genome Project. With rapid sequencing and advanced computing power, scientists can systematically test how genetic variations can bring about specific traits and diseases, rather than using trial and error. Relatively low-cost desktop sequencing machines could be used in routine diagnostics, potentially significantly improving treatments by matching treatments to patients. The next step is synthetic biology—the ability to precisely customize organisms by “writing” DNA. These advances in the power and availability of genetic science could have profound impact on medicine, agriculture, and even the production of high-value substances such as biofuels—as well as speed up the process of drug discovery

Theoretical Underpinning

Disruptive Innovation Theory

This study is anchored on Disruptive Innovation Theory (DIT) by Joseph Bower (Harvard Professor) and Clayton Christensen (a businessman), in 1995. In their article titled *Disruptive Technologies: Catching the Wave*. They defined “Disruptive Technologies” as technologies that depart fundamentally from existing ones, usually by being less complicated, more accessible, and less expensive. They explained that one of the most consistent patterns in business is the failure of entrepreneurs to stay at the top of their industries when technologies or markets change. In order to remain at the top therefore, they must look beyond satisfying small or emerging markets and focus on new technologies that meet the functional demands of mainstream customers (Cheeseman et al., 2020). Disruptive innovations change the demand and needs of a prevailing market and as a result disrupt a prevailing technical route (competence destroying) while sustaining innovations upgrade and improve it (competence-enhancing). The source of disruption can be a technological

disjointedness, a commercial disjointedness, or both, resulting in significant enhancements in product presentation or price tag (Leifer et al., 2001, Odey & Ebri, 2022). As encapsulated in the models, disruptive innovations either offer more accessible or lower prices to customers at the low end of a prevailing market (i.e., low-end disruptions) or create new markets by conveying new structures to non-customers (i.e., new-market disruptions). Low-end disruptions mark overran customers with lower-cost business prototypes. They are humbler and cheaper but lower-performing at first, thus promising lower profit margins. The reasoning behind their appearance is that by over-satisfying customers' needs in hopes of higher margins; large occupants create a space at lower price points permitting competitors with disruptive technologies to develop (Christensen & Raynor, 2003; Odey & Ebri, 2022). New-market disruptions which mark non-consumption are ground-breaking. In both types of disruptions, the common denominator is that entrants are not competing with large occupants and do not therefore apparently position an instant peril to them (Akinsola, 2021).

Impact of Disruptive Technologies in business organizations (small or large) in Nigeria

1. FinTech Companies

Since their emergence, financial technology companies (fintechs) have caused a lot of positive disruptions in the financial services sector, where they have created technology solutions that have changed the way banks operate and attend to their customers. Through fintech solutions, bank customers can stay in the comfort of their homes and offices and transact financial business with their banks, using their mobile phones, without going to the banking hall. A lot of new banking solutions have been developed that are currently driving financial services in Nigeria and in other countries of the world.

Companies under this category includes the following:

FairMoney: FairMoney is a digital bank focused on lending. The company provides instant loans of up to one million nairas, as well as a bank account and a debit card. According to the company, FairMoney processes over 10,000 loans every day, with one loan disbursed every eight seconds. While it shares the same number of downloads and ratings with OPay, FairMoney has more user reviews, which places it ahead of OPay.

Palmpay: The Palmpay fintech app was first released in September 2018, according to information on Google Play. But a pilot phase was launched in July 2019 after the company secured a mobile money operator licence from the Central Bank of Nigeria (CBN). It officially became available to Nigerian users in November 2019.

OPay: OPay launched its mobile money platform in Lagos in 2018 on the popularity of its internet search engine in Africa. OPay's mobile money service gives users the ability to pay for utilities, make P2P transfers, and save as well. The company also offers an offline banking service through which users that don't have smartphones can still carry out transactions.

JumiaPay: The e-commerce company, Jumia, first introduced its JumiaPay app in 2016 and is now used to pay for more than 50 per cent of sales on the platform. The company also recently launched consumer loans on the app via collaborations with banks. Ranking as one of the most downloaded fintech apps on the Play Store, Jumia pay had garnered over 5 million downloads.

Palmcredit: Palmcredit is a fintech app in Nigeria owned by Newedge Finance Limited where users can get a loan without collateral. As one of the most downloaded fintech apps, there is no doubt that many Nigerians are taking advantage of the loan services being provided through the app.

Globacom Nigeria

Globacom has been at the heart of cutting edge innovation, introducing most of the novel products and services that have shaped the growth of the telecommunications industry in the last 14 years. Globacom boasts of over 39.5 million subscribers in Nigeria where it is the second largest telecommunications operator.

Globacom is at the forefront of revolutionising the telecoms sector with AI enabled services. The firm has been committed to ensuring that Nigerians were not left behind in the march to a digitalised world, hence the need to digitalise major services that could improve living standard. According to the Globacom's Group Chief Technical Director, Sanjip Roy, Globacom through its Artificial Intelligence Service, the firm is set to completely change customer experience. With Globacom controlling 26.3 per cent of Nigeria's telecoms market and servicing 45.6 million subscribers out of the 174 million active subscribers in the country, and to show that it is ready for the AI revolution, Roy said over 2,000 generators, and 6,000 new batteries had been swapped for better power availability for the network. He also stated that about 1,000 kilometres of fibre have been rechanneled to the ongoing road constructions across the country. There is also the Glo World Connect, which ensures that business executives stay connected to their offices anywhere in the world by offering them the most affordable roaming data in 60 countries with over 6.4 million wifi hotspots worldwide. The company has disclosed that the infrastructure will be available in all world airports.

Bolt/Uber Companies

Digital automobile companies are using technology to redefine the customer experience, making it difficult for the existing companies to cope. Digitalization has helped the vendor and the customer to have a direct transaction thereby eliminating the need of intermediate party or a middleman, also known as Peer to Peer model (P2P). Uber and Bolt with its app is successfully using the P2P model, bringing the consumer in direct contact with the provider. Uber has disrupted the taxi industry using digital technology such as mobile phones, AI, IoT amongst others. In fact, with digitalization Uber and bolt companies in Nigeria has been able to form a huge market by providing quick and easy transport solutions to consumers. Disruption usually works on the principle of simplicity. Bolt and Uber's value addition has been simple and cheap and perceived easier than from hailing or renting taxis. It has also adopted a simple model for Business promotion that is, by using current customers who get promotional codes on their smartphones and pass them to their acquaintances. Beside Nigeria, both bolt and Uber companies has created enough stir in the aggregator sector in both America (where it started) and India (where it has largest market outside America). Where we say that Bolt and Uber business has digitally disrupted the taxi market, it actually has managed to generate multi fold employment and going by the basic business objectives it is able to provide more value to the existing customers. Researchers vary in their opinion about Bolt and Uber being a disruptive technology.

In terms of hierarchies, the sharing economy directly intervenes in transaction arrangements among parties (Uber drivers and Uber riders) through contractual, centralized management processes and algorithm-based applications for connections and payments. Akbar and Tracogna stated that for the sharing economy, the nature of the transactions and the strategic decision of the platform owner, such as Uber, are the two governing factors that relate markets and hierarchies leading to the use of the hybrid model. In this study, I adopted the hybrid model of markets and hierarchies for managing transactions in terms of the five TCT assumption characteristics: (a) opportunism, (b) bounded rationality, (c) asset specificity, (d) uncertainty, and (e) frequency between Uber, Uber drivers, and Uber riders in the e-sharing economy.

Oracle

Oracle is a technology company that has developed lots of technology solutions that solve specific challenges, thereby enhancing businesses and economies. Oracle has been in Nigeria for several years, doing the business enterprise solution applications that are helping businesses to grow and make more profit, while enhancing customers' experience.

Giving testimony of how Oracle solutions have impacted on the business of the Nigerian Custom Service during the 2018 Oracle Impact Technology Summit organised for organisations and partners by Oracle Technology Company in Lagos recently, the Assistant Comptroller General of the Nigerian

Customs Service, Benjamin Terseer Aber, spoke on how the deployment of Oracle solutions helped Customs to raise as much as N140 billion in one month, precisely in the month of August 2018, for the federal government, which sums up to N1.7 trillion yearly, if the solution is deployed in the next one year.

According to Aber, Customs service was generating less than N400 billion in one year as at 2005, before the deployment of the technology solutions from 2013.

"We have since moved from manual documentation to automated documentation. We have deployed software solutions from Oracle that manages both the front-end and the back-end services of Customs," Aber said. Giving details of how the technology automation works, Aber said, "business automation remained key for us at Customs to enable us move away from manual processes of clearing of goods." "What we did was to introduce the Nigeria Integrated Customs Information System (NICIS 11) software application from Oracle to connect all government agencies on the same platform to enable us interface electronically with all other government agencies that are involved in controlling international trade transactions.

"When a clearing agent makes bank payment to Customs or to any of the government agencies and the bank uploads the payment on the NICIS 11 platform, we automatically see the payment details online, and this has compelled all clearing agents that do clearing business with Customs to be transparent without trying to cut corners and short-changing government."

He said the Customs also used another technology tool called Tax Identification Number (TIN). Country Manager, Oracle Nigeria, Mr. Adebayo Sanni, said in today's development, technology innovation is not only transforming businesses, but also transforming the way individuals work, play and learn. According to him, Oracle Impact Technology Summit was designed to bring future technology to meet the needs of today's businesses.

Golden Tulip Hotel

The Golden Tulip Port Harcourt Hotel is a first class 4 star international business hotel. The hotel through its outstanding quality management has been able to evolve the following disruptive technologies in order to enhance customer satisfaction.

Voice activated technology: Voice interactions are steadily replacing screen time as the world rapidly adopts AI assistants. Hospitality organizations should prepare for a paradigm shift as consumers rely more on conversational exchanges to plan travel and interact with travel providers. Travel is complicated and voice developments aren't simple, but heavy investment and demand is fueling voice technology in hospitality. Now customers can get the "Alexa/GoogleAssistant" like experience through voice activated devices in the rooms, even to the point of providing both textual and voice language translation in real time.

Stronger Authentication & Biometrics: Verification and identification information are used to transform check-ins and check-outs, effectively skipping the processes altogether. For example, IoT—beacons, surveillance analytics—are used to immediately detect a guest's presence and send a digital key card to their mobile device. Then, using that same intelligence, hotels are able to set up the room to meet that guest's exact preferences all before they step through the door (keep in mind 73% of guests want in-room components like temperature to be automatically adjusted based on preference).

Automatic notifications: Eighty-five percent of guests agree that at Tulip Hotel, they use real-time notifications for such things as room readiness, booking confirmations, changes or issues, and new room options. An advanced omnichannel solution—built on open communications infrastructure—drives proactive guest engagement, reducing common errors and arriving at better outcomes more quickly. Using this technology has automatically or manually trigger notifications depending on property or guest needs, proactively reaching out with information, updates and engaging multimedia. Also the integration with IOT platform has made the hotel to be able to send notifications to guests, security or emergency services. As more IOT/Sensors are deployed, a

scalable notification system has become a critical component to ensure all critical situations are addressed in real-time.

Advanced in-room application devices: A next-gen smart desk application device turns the traditional hotel room into a revenue-generator. It's more than a phone, but it is fully integrated with your communication platform. This device can be used for controlling in-room needs (TV, restaurant/spa reservations, viewing local events), ordering room service or booking appointments at the touch of a finger. A smarter in-room communications hub enhances experiences, profits and return (reducing costs of overhead for staffing). Last, it supports calling 911/112/000/999 for emergency too, very critical for all hospitality environments as per the law.

CONCLUSION

While Internet of Things (IoT) is driving global connectivity and developing communication between humans and devices, Artificial Intelligence (AI) and Machine Learning (ML) are the latest technologies through which machines are developed in the form of robotics that have the capacity and artificial intelligence to multitask and perform human activities in all aspect of human endeavours. Through these technologies, businesses are scaling up faster, and human interface in business is gradually being reduced, while giving room for greater work efficiency, thereby saving cost for organisations and economies. Technology experts have strongly advised organisations to either embrace emerging technologies or lose grip of their businesses and stand the risk of being overtaken and left behind in today's world, where technology is driving everything.

Disruptive technologies, such as AI, IoT, cloud computing, and robotics, are transformative and have the potential to revolutionize healthcare, banking systems, tertiary institutions amongst others. The study concludes that in a future where technologies has the power to facilitate every touch point from commerce to public services, we must strive to ensure it remains a force for good. We, therefore, have to nurture our business to be technologically inclined.

RECOMMENDATIONS

The findings obtained from the analysis of data gives room for making recommendation. These include:

1. Managers of organisations should see advance and sophisticated technologies as a catalyst to improve service quality and advertise products to end users in order to stay competitive in the global industrial market.
2. The study recommended that managers of companies should consider restructuring of their industry towards industrial revolution so as to encourage new disruptive technologies among various sectors

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