

## **Disruptive Innovations and Employees' Career Performance in Some Selected Business Organisations**

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doi: <https://doi.org/10.37745/ejbir.2013/vol12n62347>

Published September 1, 2024

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**Citation:** Agbaje, Y. T., Obisanya, J. F, Olubodun, I. E. (2024) Disruptive Innovations and Employees' Career Performance in Some Selected Business Organisations, *European Journal of Business and Innovation Research*, Vol.12, No.6, pp.,23-47

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**Abstract:** *This study explores the impact of disruptive innovations—technological advancements in transforming business practices—on employees' careers, with a focus on Nigeria. While disruptive innovations enhance industrialisation, globalization and efficiency, their influence on employee roles, skills, and job security have been under examined, especially in developing countries, thereby changing narrative of the future of work. Using a survey methodology and analyzing both quantitative and qualitative data, the study finds that respondents are generally aware of disruptive innovations, though adoption varies among organizations. The results indicate positive effects on employees' roles and skills but highlight the need for ongoing reskilling and upskilling. Thus, the conclusion is that stakeholders, such as job seekers, business owners, employees, and policymakers, will be aided in making informed decision regarding disruptive innovations. The study suggests that future studies should model employee development in response to these technological changes in the Nigerian context.*

**Keywords:** disruptive innovation, technology, entrepreneurship, business environment, employee, skill.

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### **INTRODUCTION**

Over the years, the reality of globalization vis-à-vis disruptive technology has brought about a series of advancements in technological world to continuously respond to various needs of ever-changing society and environment. Disruptive technology was recognized in the extant literature as a proven pathway and strategy for achieving technological

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advancements across the globe. The concept of disruptive technology was introduced in 1995 by Bower and Christensen (1995). They described the concept as a newly developed technology that replaces existing technology and completely changes the way of life, work, and business models. Also, the scholars pinpointed that disruptive technology could emerge suddenly and occasionally (Satalkina & Steiner, 2020; Zighan, 2022). Baiyere and Salmela (2013) and Ayobami et al., (2019) emphasised that this 21st century is a time to disrupt and to be disrupted.

Continuous improvement in technologies, as evidence of a strong connection between entrepreneurship and innovation was well-established by researchers (Autio et al., 2014; Hang et al., 2015). Specifically, Schumpeter (1961) traced the gales of creative destruction to entrepreneurs, whereby they introduce all manners of disruptive products, services and processes into the marketplace. Autio et al. (2014) and Dorothy et al. (2020) reported that the main focus of creative activities of entrepreneurs is to challenge and disrupt existing market with an innovative improvement on a particular technology. An improved technological product that emerges in this scenario, could be referred to as disruptive technology. According to Feder (2018), disruptive technology represents a new business that has an opportunity of effortless-market entrant and domination over an existing long-established product, upon which an improvement is made. The author stated further that entrenched business might be forced to change strategies in order to move with the current market trend or be totally displaced.

The focus of most literature on disruptive technology revolves round the displacement of a long-established technology in order to favour the entrant of a new technology into the market. Yu and Hang (2011) explained that the market displacement attribute of a disruptive technology is possible because they are technologies capable of delivering values different from the conventional types of technologies. For instance, personal computers disrupt mainframe computers; compact disc disrupts record albums and tapes; digital camera disrupts silver halide film; fuel injectors disrupt carburettors; electronic calculators disrupt slide rulers; cell phones disrupt landlines; and renewable energy sources like inverter and solar panel disrupt non-renewable source like hydroelectric power for national electricity grid (Zighan, 2022). The aforementioned typical examples of disruptive technologies have dominated the marketplace around the globe, in recent years.

Christensen and Raynor (2003) replaced disruptive technology with an overarching construct termed disruptive innovation. This gives a better description of all technological disruptive phenomena, covering every value-adding novel technological based product and business solutions (Dorothy et al., 2020). Consequently, disruptive innovation encompasses disruptive technology (tangible technological products and other disruptive technological solutions that do not involve production of tangible products). The latter

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category of disruptive innovation includes innovative business solutions involving applications of electronic technology otherwise known as digital technology – electronic information and communication technology. That is, business disruptive innovations using internet (e-mailing, e-marketing, e-learning, e-banking, artificial intelligence and so on) also called internet of things.

Disruptive innovations are transforming workplaces and business organizations by enhancing operational modes to adapt to technological changes in various sectors. To this end, most of the previous studies on disruptive innovation with respect to business and workplace environment hinged on the effects of disruptive innovations on business organisation as an entity. The observed effects include but not limited to making business operations seamless, stress-free and fast with the ultimate goals of enhancing organisational competitive advantage, opportunity, productivity and profitability. However, there is a dearth of information on effects of adoption or usage of disruptive innovations on individuals working in any business organisation, especially in a developing nation like Nigeria. Thus, this study was set to investigate influences of adoption of disruptive innovations on employees' career in some selected business organisations in Ibadan, Nigeria. Consequently, this research provided answer to the following research questions: Are employees aware of disruptive innovation and its adoption in their organisations? What is the effect of disruptive innovation on employees' roles and skills? What is the effect of digital innovation on employees' job security? What is the extent of employees' need for reskilling and upskilling in the digital age?

## **LITERATURE AND THEORETICAL UNDERPINNING**

The concept of “disruption” according to researchers in the managerial literature varies. Different terms, concepts, constructs were used synonymously to describe disruption. For instance, Aroyeun et al. (2018), Linyiru and Ketyenya (2017) and Hughes-Morgan et al. (2018) used competitive aggressiveness; Christensen et al. (2018), Dinesh and Sushil (2019), Dumoulin & Giacomel, (2020) and Alsharif (2019) used disruptive strategy; Flor et al. (2018) and Stringer (2000) used radical innovation; Markides (1997), Schlegelmilch *et al.* (2003) and Varadarajan (2018) used strategic innovation; Jamak et al. (2014) and Holmberg et al. (2013) used breakout strategy; and Leavy (2018) and Russo-Spena & Marzullo, (2019) used value innovation to describe disruption. This study adopted both strategic innovation and value innovation as its interpretations of disruption, based on the focal construct (disruptive innovation) of this research. However, several recent efforts provided by business scholars and managers agreed that the central idea of disruptive strategies is to introduce into a business sector, a new economic model, born from the radical modification of the value proposition for the client and/or of the value architecture

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(Schiavi, & Behr, 2018; Yunus et al., 2010; Chemma, 2021). On the contrary, the extant literature revealed that disruptive innovation does not connote business or economic model. Disruptive innovation originated from Clayton Christensen in 1997 (Christensen, 2013). According to Hardman et al. (2013), the proponent defined disruptive innovation as a process through which a product or service is first developed on the ground of the market, then swiftly explodes the market and ultimately displaces existing competitors. From another perspective, Hang et al. (2015) viewed disruptive innovation as a process in which entrepreneurial efforts and actions are fundamental to the development and commercialization of innovative products and operations. In sum, this study defined disruptive innovation as an entrepreneurial and novel process, product, service or operation that has a commercial value. Moreover, disruptive innovation is typically characterised by its potential to alter the need of an existing market by using an attractive feature such as updated technology, user-experience or interface to displace an existing product, and thereby gaining entry into the market (Kivimaa et al., 2021). Thus, Christensen's theory of disruptive innovation emphasised that failure of successful businesses could be averted by recognizing the need for managers and business organisations to build destructive capabilities and also pay rapt attention to rivals with destructive innovations.

The basis for disruption could be a discontinuity in a particular technology, commerce or both, which might be traceable to improvement in cost, performance, efficiency and so on (Millar et al., 2018). Among the earliest scholars to identify the disruptive nature of technological change was Schumpeter, noting that it could lead to waves of creative destruction (Schumpeter, 2017). He considered innovation as both the creator and destroyer of corporations and entire industries. Karimi and Walter (2021) accentuated that Schumpeter in his early works reiterated on the role of entrepreneurs in seizing discontinuous opportunities to innovate. The authors stated further that innovations were considered in a broad sense of new combinations of producers and means of production, which includes new products, new methods of production, opening up of new markets, utilization of new raw materials, or even the reorganization of a sector of the economy. Schumpeter asserted further that new technology, product, or service gradually eliminates the existing product from the market. This concedes with Olubodun et al. (2024) that technological advancements enable the creation of more efficient production processes and the development of new products. The implication is that disruptive innovation will bring into the marketplace a new product with outstanding features, selling proposition, performance, price and so on, which will distinguish it from existing products. In some scenario, innovation might be less acceptable, if it is newly introduced into the market, but it will gradually attract the conventional customers or clients.

## **METHODOLOGY**

This is a survey research that utilised both quantitative and qualitative research approaches to elicit information from employees, both at the management and non-management levels in some selected business organisations in Ibadan, Oyo State, Nigeria. In addition, the respondents are those staff who always transact day-to-day business activities with any of disruptive innovations in the business ecosystem. In this context, the disruptive innovations, focusing majorly on those technological-based business solutions to manage information and communication in business. These are otherwise known as digital technologies. The two categories are: physical products (for example: personal computer, phone, walkie-talkie, electronic calculator, flash drive and wireless public address system) and services (for example: internet of things, which include e-banking, e-mailing, e-marketing, e-learning and e-accounting system). The study employed convenience sampling procedure, which is based on readiness, willingness, and availability of respondents to be used for the study. Therefore, 50 and 32 respondents were sampled to obtain quantitative and qualitative data respectively.

Structured (closed-ended) and unstructured (open-ended) questionnaire, as the research instrument was administered to participants via internet. The instrument was designed to measure variables such as digital skills, job insecurity, and organizational support. Also, it intended to gather information about employee perceptions on disruptive innovations, digital transformation, and the relevance of employees in their various business organizations, using a 5-point likert scale that ranges from Strongly Disagree (SD) to Strongly Agree (SA). The research instrument was then pilot tested, to establish its content validity. Corrections were subsequently made to address observed issues vis-à-vis the representativeness and suitability of the survey questions, the structure of the questionnaires, the consistency of options, the simplification of terminologies, and the definition of terms to establish content validity of the instrument. The survey was conducted between September 22 and November 17, 2023. The resulting primary data from this study were analysed, using both descriptive quantitative statistics and qualitative data analytical methods.

## **RESULTS**

### **Demographic of Respondents**

The distribution of demographic of sampled participants were presented in Table 1. The diversity of the sample contributes to the richness of the insights derived from the findings. The gender distribution of the respondents indicated a relatively balanced representation, with 35 participants identifying as male (42.7%) and 47 participants identifying as female (57.3%). Regarding age distribution, majority of the respondents fell within the 18–27 age

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range, constituting 51.2% of the sample. Participants between the ages of 28 and 42 accounted for 26.8%, while those between the ages of 43 and 58 comprised 20.7% of the respondents. Respondents over 58 years were the smallest group, making up 1.2% of the sample. The educational backgrounds of the participants revealed diversity, with the highest level of education attained varying across categories. Most respondents held a Bachelor of Science (B.Sc.) degree, representing 48.8% of the sample. Other educational qualifications included Master of Science (M.Sc.) at 18.3%, Senior Secondary Certificate Examination (SSCE) at 13.4%, Higher National Diploma (HND) at 8.5%, and Doctor of Philosophy (PhD) at 4.9%, among others. In terms of the employment status, a large portion of the sample identified as employed, comprising 56.1%. Self-employed individuals and entrepreneurs constituted 34.1% of the sample population, while students and unemployed respondents accounted for 4.9% and 3.7%, respectively.

Table 1: Demographic variables of Respondents

Demographic Variables		Frequency	
		Absolute	Relative (%)
Gender	Male	35	42.7
	Female	47	57.3
Age Category	18 - 27 years	42	51.2
	28 - 42 years	22	26.8
	43 - 58 years	17	20.7
	above 58 years	1	1.2
Level of Education	SSCE	11	13.4
	NCE/ND	4	4.9
	HND	7	8.5
	B.Sc.	40	48.8
	Post graduate diploma	1	1.2
	M.Sc.	15	18.3
Employment Status	PhD	4	4.9
	Unemployed	3	3.7
	Student	4	4.9
	Self-employed/Entrepreneur	28	34.1
	Employed	46	56.1
	Retiree	1	1.2

Source: Field survey, 2023.

The respondents represented diverse sectors and industries within the business landscape. The service sector was prominently represented, with 87.8% of respondents indicating their affiliation with this sector. The manufacturing sector constituted 9.8% of the sample, while the agricultural sector had the lowest representation at 2.4%. Considering the business industries, Banking and Finance had a notable presence, with 22.0% of respondents working in this sector. The Healthcare sector also featured prominently at 36.6%. Other

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industries, such as Entertainment (13.4%), Telecommunications (2.4%), Education (9.8%), Information Technology (3.7%), and Oil and Gas (3.7%), Legal Services (2.4%) and Real Estate and Construction (2.4%) exhibited varied levels of representation. Furthermore, participants' job titles reflected a diverse range of roles. Administrative officers and managers were the most prevalent, constituting 30.5% of the sample. Other job titles included Tech and IT Enthusiasts (13.4%), Marketing and Sales Enthusiasts (9.8%), and Creative and Writing Enthusiasts (12.2%), among others.

Table 2: Economic Activities of Respondents

Economic variables		Frequency	
		Absolute	Relative (%)
Business sector participation	Agricultural Sector	2	2.4
	Manufacturing Sector	8	9.8
	Service	72	87.8
Industry belongingness of respondents	None	3	3.7
	Banking and Finance	18	22.0
	Education	8	9.8
	Entertainment	11	13.4
	Healthcare	30	36.6
	Information Technology	3	3.7
	Legal Services	2	2.4
	Oil and Gas	3	3.7
	Telecommunications	2	2.4
	Real Estate and Construction	2	2.4
Current job title	None	4	4.9
	Student	5	6.1
	Admin Officer & Manager	25	30.5
	Beauty and Wellness Enthusiast	6	7.3
	Tech & IT Enthusiast	11	13.4
	Healthcare & Medicare Enthusiast	6	7.3
	Marketing & Sales Enthusiast	8	9.8
	Creative & Writing Enthusiast	10	12.2
	Education and Academia	7	8.5

Source: Field survey, 2023

### Employees' Awareness on Disruptive Innovation and Its Adoption in their Organisations

Responses on awareness of disruptive innovation and its adoption in their workplaces showed that 100% of respondents acknowledged the presence of all kind of disruptive business solutions in the ecosystem. While 98% of the respondents indicated wholly

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adoption of disruptive innovation in their business organisation. Below is one response as evidence of respondents in the latter category:

*Yes, I am familiar with the concept of disruptive technology. Certainly, yes. I am familiar with the concept of disruptive technology. More so, I am familiar with the concept of digital transformation. Yes, digital transformation is a familiar concept. Yes, we have adopted disruptive technology in recent times. Well, for my organisation, we have not adopted disruptive technology in recent times. Of course, I have heard of disruptive technology, but it has not been too well adopted by my organisation.*

The implication of observed results in this section is that the concept of disruptive innovation is no longer an alien term to employees in various business organisations, as they were well aware of it. While a considerable number of organisations have taken steps to incorporate disruptive innovation, a significant minority still remain at the stage of non-adoption.

### **The Effects of Disruptive Innovation on Employees' Roles and Skills**

Responses on various aspects related to the effects of disruptive innovation on employees' roles and skills were presented in table 2.

Table 2: Responses towards Effects of Disruptive Innovation on Employees' Roles and Skills

Statements	Figures in cells are in percentages (n = 82)					Mean
	SD	D	N	A	SA	
Disruptive technology has made certain employee skills or roles irrelevant in my organisation	7.3	13.4	18.3	48.8	12.2	3.45
My role has changed due to the adoption of disruptive technology in my workplace	12.2	23.2	30.5	34.1	0	2.87
I have had to acquire new skills or knowledge to adapt to the changes in my job role	4.9	3.7	8.5	58.5	24.4	3.94
It was difficult for me to use the technology that my organisation adopted	11	50	19.5	19.5	0	2.48
I felt adequately supported by my organisation when the disruptive technology was introduced	3.7	7.3	19.5	53.7	15.9	3.71
Disruptive technology has impacted my job positively.	3.7	6.1	8.5	57.3	24.4	3.93

*Source: Field Survey, 2023.*



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An overwhelming majority of respondents (61.0%), of whom 48.8% "agree" and 12.2% "strongly agree," concurred that disruptive technology has rendered particular employee skills or roles obsolete. This consensus is reflected in the mean score of 3.45, suggesting a prevailing inclination towards agreement. Participants exhibited mixed responses in relation to the transformation of their individual roles due to the integration of disruptive technology. A notable portion (34.1%) agreed with the notion that their job roles had undergone changes in response to technological shifts, with those who "disagree" and "strongly disagree" accounting for 35.4% of the respondents and 30.5% choosing "neutral" to this question. These sentiments, as reflected in the mean score of 2.87, indicate a moderate level of agreement.

In light of the need to adapt to the evolving landscape, a significant majority (82.9%) of respondents expressed agreement (agree and strongly agree) that they had acquired new skills or knowledge. This inclination towards embracing new skills is demonstrated by the mean score of 3.94. Conversely, a minor proportion (8.5%) maintained a neutral stance in this regard. Exploring the perceived difficulty of employing the newly introduced technology, more than half (61% combined for both disagree and strongly disagree) expressed disagreement, implying that the technology was not significantly challenging to use. The mean score for this statement stood at 2.48, indicating moderate disagreement.

Considering the support provided during the integration of disruptive technology, a substantial 69.6% of respondents reported feeling adequately supported by their organisations. This positive sentiment was underscored by the mean score of 3.71. Evaluating the overarching influence of disruptive technology on job roles, a significant majority (81.9%) acknowledged a favourable impact on their roles. This consensus on the positive impact is evident from the mean score of 3.93. The varying degrees of agreement and disagreement provide a comprehensive picture of how disruptive technology has influenced different aspects of employees' professional lives. It is evident that the introduction of disruptive technology has led to changes in employee roles and skills within the business environment. Respondents generally acknowledged that certain skills and roles had become irrelevant, and many indicated that they had to acquire new skills to adapt. It also suggests that while there were challenges using the technology, respondents felt supported by their organisations during the transition. Additionally, a considerable proportion of respondents perceived a positive impact on their jobs due to disruptive innovation.

Moreover, responses from the qualitative aspect of this study regarding the effects of disruptive innovation on employees' roles or jobs also varied, as some perceived the impact to be positive while others claimed it to be negative. These submissions are revealed in the extract from their responses and presented as follows:

*The disruptive technology adopted by my organisation is the cloud computing. For my firm, we have adopted the IOT, Supply chain, Big data and analytic, and AI. There is the adoption of the Android POS for my firm, and for my firm, we adopted the traffic management. My firm adopted the auto-captioning which is basically for my video project. In our company, with response to your question, we have actively integrated Block-chain technology into our suite of IT solutions. I worked in the hospital and we have adopted the Hospital Software Management System.*

*And, yes of course, we currently adopt digital transformation. Absolutely, our organisation recognizes the imperative of digital transformation in today's fast-paced business environment. We are actively adopting digital transformation not just as a service for our clients, but also within our operations.*

*The challenge of disruptive technology is revealed in the adverse impact on the delivery of our core business area, which is Books consolidation. The challenge of educating our clients on cloud security and stability, and the training and retraining of staff. Also, adopting this concept bring about elimination of human interactions and illiteracy form another challenge to its adoption. Retrieval of information from system may be an impossible task. For my organisation though, we have no challenge as to adopting the new wave of technology.*

*I would consider the effect of disruptive technology as positive. Of course, the effectiveness of cloud technology in my job is definitely on the positive side. It is positive because it makes my job easier and effective. The effect is a positive one. As a security analyst, I would consider the effect of disruptive technology to be largely positive. Yes, disruptive technology effect is positive and it makes the working environment to be more enhanced and job being done and delivered at a faster pace. It is positive; this is because of the immense knowledge benefit derived and the ability to perform difficult tasks within short time. More so, disruptive technology effect is positive as it gives room for improvement.*

From the above, it is evident that organisations are adopting quite a number of disruptive technologies to advance their businesses and promote quality delivery. However, some organisations face challenges while adopting and integrating new technology. In addition,

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it is shown that the effect of disruptive technology is, to a large extent, positive, and this is based on the findings made from the responses gotten from the respondents.

The comprehensive (both quantitative and qualitative) overview of employees' responses reveals the multifaceted influence of disruptive technology on their professional domains. The evolving landscape, as illuminated by findings from Brynjolfsson and McAfee (2014), Autor (2015), and Bughin et al. (2018), showcases shifts in roles and skills demanded within businesses, and this resonates with respondents' recognition of rendered skills' obsolescence and their proactive acquisition of new competencies, consistent with the insights of these studies. Furthermore, the challenges in technology assimilation, noted in parallel with Lingmont and Alexiou (2020) and Nöhammer and Stichlberger (2019), underscore the pivotal role of organisational support during this transition. Amid these shifts, the discernible positivity in respondents' perceptions of the effect of disruptive technology aligns with the notions of emerging roles discussed by Manyika et al. (2017) and the performance improvements resulting from upskilling and reskilling, as put forth by Blanka, Krumay, and Rueckel (2022) and Li (2022).

**The effects of digital innovation on employees' job security**

Various dimensions of job security vis-à-vis adoption of disruptive innovation, and their responses are presented in Table 3. A considerable proportion (52.4%) indicated disagreement (disagree and strongly disagree) with experiencing job insecurity or the fear of job loss due to disruptive innovation adoption. The mean score for this aspect was 2.72, reflecting a moderate level of concern. Exploring future apprehensions about job displacement due to technology, participants exhibited similar sentiments. A significant 58.5% of respondents expressed disagreement (disagree and strongly disagree) that their jobs might be taken over by disruptive innovation in the future. The mean score for this statement stood at 2.51, indicating a moderate level of anticipation.

Table 3: Latent variables on job security vis-à-vis adoption of disruptive innovation

Statement	Figures in cells are in percentages. (n = 82)					Mean
	SD	D	N	A	SA	
I experienced job insecurity or fear of job loss due to the adoption of disruptive innovation in my workplace	12.2	40.2	15.9	26.8	4.9	2.72
My job will be taken over by disruptive innovation in the future	18.3	40.2	19.5	15.9	6.1	2.51
Disruptive technology will eventually take over some people' jobs	2.4	2.4	12.2	58.5	24.4	4.00
My organisation adequately included me in the process of adopting disruptive innovation.	3.7	12.2	18.3	54.9	11	3.57

Source: Field Survey, 2023

Respondents were also asked about the broader effect of disruptive innovation on job displacement. In this context, 83.0% of participants conveyed agreement (agree and strongly agree) with the notion that disruptive technology will ultimately replace certain job roles. The mean score for this aspect was 4.00, the highest attainable value, indicating a strong consensus on the potential for job displacement due to disruptive technology. In terms of organisational involvement during the technology adoption process, 66.0% of respondents indicated agreement (agree and strongly agree) that they were adequately included in the process. This perception of organisational inclusion was mirrored in the mean score of 3.57, suggesting a positive overall sentiment. These findings collectively highlight the variability in perceptions regarding the impact of digital disruption on job security.

Furthermore, qualitative information on dispositions of the respondents towards job security, as influenced by adoption of digital innovation in their business organisations, are detailed below in the extracted responses.

*No, I have not had experience of fear of job loss. I am a stakeholder in the disruptive technology company; hence, I have no fear of job loss. While disruptive technology has introduced new challenges and rapidly evolving threat landscapes, I haven't personally felt job insecurity or fear of job loss. No, digital disruption does not pose any harm to me and it has actually gotten people more jobs. No, as technology cannot absolutely disrupt the necessity of humans in organisations.*

*Personally, I don't see digital disruption as posing any threat. The long-term effect of digital disruption are job polarization, continuous upskilling, new job roles, flexible work models, human - machine collaborations. Overall, adaptability and continuous learning will be key in navigating the challenges and opportunities presented by digital disruption. Digital disruption will make everyone to be on their toes and keep working to meet up with the challenges of the new trend. More so, digital disruption will create competition between employees and in turn open room for sourcing of knowledge on latest happenings. The long - term effect of digital disruption is positive because it will make it easier to access information when required. It will also bring about total elimination of paper use. More so, while the introduction of digital disruption come with new challenges and complexities, it also offers advanced tools and methodologies to counteract threats. It also ensures continuous learning, keeping roles dynamic and offers opportunities to be at the forefront of innovation in cyber-security. It is also evident that with the new innovation and current happenings globally, the percentage of human service may likely reduce soon, while robot and other forms of machine will take over.*

*The potential long-term effect of digital disruption is negative. Digital disruption can lead to loss of jobs and livelihoods. The tendencies are that digital disruption will render human inputs redundant and thereby render many people jobless. The future of work belongs to the digitally compliant employees, wherefore the illiterate will be rendered completely irrelevant. Also, the tendencies for overwhelming workload is inevitable as the few available skilled employees will be overladen with work.*

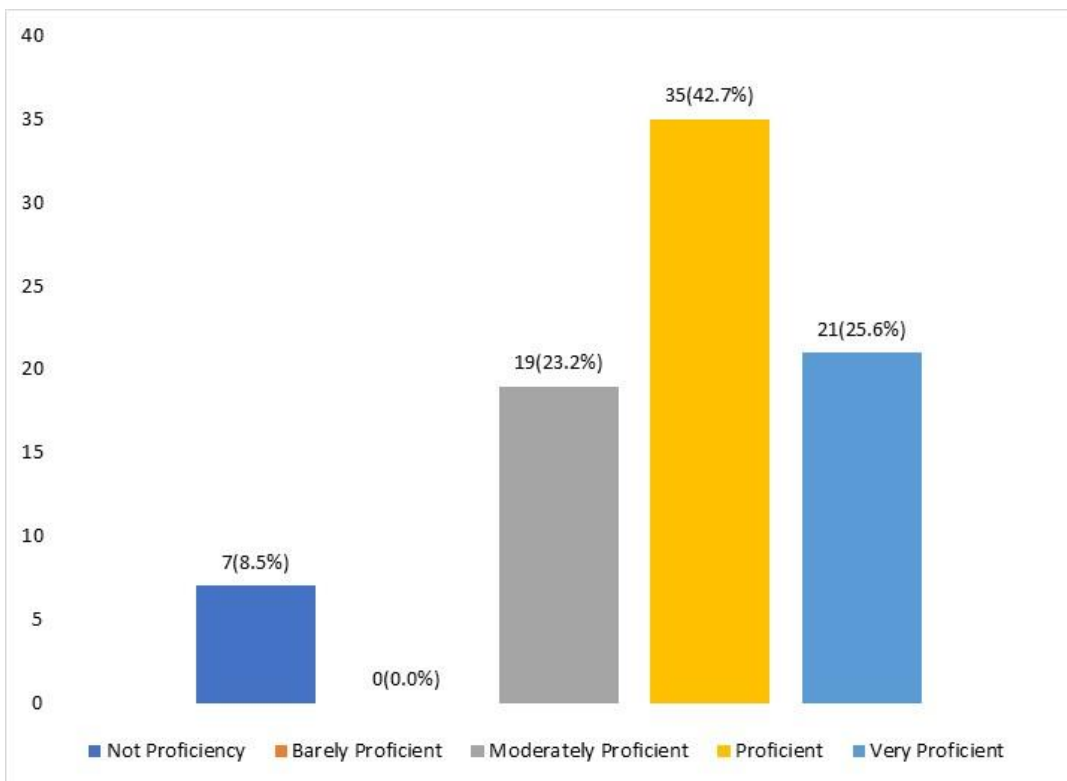
It can be deduced from the above responses that disruptive innovation does not negatively affect the security of employees' jobs, as it is on the high side of improving employees' skills than adversely affecting them.

### **Employees' Need for Reskilling and Upskilling in The Digital Age**

To evaluate the extent of the demand for 21st century skills among employees in the digital age, focusing on the necessity of reskilling and upskilling, participants were first asked to assess their overall proficiency in 21<sup>st</sup> century skills, such as digital literacy, critical thinking, and collaboration, on a scale from 1 to 5, with 1 representing "not proficient" and 5 indicating "very proficient." The distribution of responses (Figure 1) reveals that approximately 8.5% of participants self-reported as "not proficient," indicating a lower

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level of confidence in their command of 21<sup>st</sup> century skills. A larger segment, constituting 23.2% of participants, indicated a "moderately proficient" level, reflecting a moderate degree of competence. A significant proportion, comprising 42.7% of participants, identified themselves as "proficient," suggesting a substantial level of confidence in their 21<sup>st</sup> century skillset. Additionally, 25.6% of participants rated themselves as "very proficient," signifying a high level of mastery of these skills.



**Figure 1:** Depicting respondents' rating of their overall proficiency level in 21<sup>st</sup> century skills (e.g., digital literacy, critical thinking, collaboration)

This range of self-assessments highlights the various perspectives participants hold about their proficiency in 21st century skills. The distribution shows a mix of readiness levels, with a notable percentage feeling proficient or very proficient. This diversity in self-evaluation underscores the various degrees of preparedness among respondents to effectively navigate the challenges and opportunities presented by the contemporary digital landscape.

In addition, Table 4 reveals the results of survey questions related to their perceived need for these skills. Respondents were questioned about the importance of 21<sup>st</sup> century skills

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for their job roles. An overwhelming majority (90.3%) expressed agreement (agree and strongly agree) that these skills were pivotal to their jobs. The mean score for this aspect stood at 4.15, indicating a strong consensus on the significance of 21<sup>st</sup> century skills.

Table 4: Perception on the extent of employees’ need for reskilling and upskilling in the digital age

Statements	Figures in cells are in percentages (n = 82)					Mean
	SD	D	N	A	SA	
For my job, 21st century skills are important.	8.5	1.2	0	47.6	42.7	4.15
I feel a need to acquire or improve specific 21 <sup>st</sup> century skills to remain relevant in my job or industry.	2.4	0	6.1	37.8	53.7	4.4
It is important for employees to reskill and upskill in the 21 <sup>st</sup> century.	2.4	0	1.2	37.8	58.5	4.5
I have received training from my organisation to develop the 21 <sup>st</sup> century skills I need in this digital age.	2.4	7.3	24.4	47.6	18.3	3.72
My organisation has been helpful in handling the challenges posed by disruptive technology, such as providing training, reskilling and upskilling programmes.	2.4	8.5	23.2	50	15.9	3.68
I am satisfied with the support and resources provided by my organisation for acquiring and developing 21 <sup>st</sup> century skills.	2.4	2.4	26.8	54.9	13.4	3.74

*Source: Field Survey, 2023.*

Moreover, participants were asked about their perceived need to acquire or enhance specific 21<sup>st</sup> century skills to remain relevant in their roles or industries. A remarkable 91.5% conveyed agreement (agree and strongly agree) with this notion. The mean score for this statement was 4.40, further accentuating the participants' substantial inclination towards reskilling and upskilling. Furthermore, respondents were asked to weigh in on the broader importance of employees engaging in reskilling and upskilling in the 21st century. A notable 96.3% of participants expressed agreement (agree and strongly agree) with the

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significance of these activities. The mean score for this statement was 4.50, underscoring a compelling consensus on the need for continual skill development.

Participants' perceptions of organisational contributions to skill development were also examined. 65.9% of respondents conveyed agreement (agree and strongly agree) that their organisations had supported their skill development through training and related programmes. The mean score for this aspect was 3.72, affirming a positive sentiment towards organisational involvement. Participants were further questioned about their organisations' handling of challenges posed by disruptive technology, including reskilling and upskilling initiatives. A substantial 65.9% expressed agreement (agree and strongly agree) with their organisations' responsiveness to these challenges. The mean score for this statement stood at 3.68, signifying a moderate level of agreement. Finally, participants' satisfaction with the support and resources provided by their organisations for skill acquisition and development was explored. A notable 68.3% expressed agreement (agree and strongly agree) with the support they received. The mean score for this aspect was 3.74, highlighting a generally positive sentiment towards organisational efforts.

It is evident that employees have a strong inclination towards the importance of 21<sup>st</sup> century skills and the need for reskilling and upskilling. Organisations that offer training and support for skill development are perceived positively. The overwhelming agreement among responses underscores the consensus among participants regarding the significance of continuous skill enhancement in navigating the complexities of the digital age. These underline the symbiotic relationship between employee aspirations for skill development and organisational efforts to facilitate their growth. As organisations aim to thrive in an ever-evolving landscape, their commitment to supporting employee skill acquisition is poised to yield enhanced employee satisfaction, adaptability, and a more agile response to disruptive technological changes.

Qualitative information about the claims of the respondents on the need for reskilling and upskilling in the digital age are detailed in the responses extracted below.

*Reskilling and upskilling are very important. Yes, 21<sup>st</sup> century skills are crucial to remain relevant in my job. As the business environment becomes increasingly digital and interconnected, the skills acquired ensure for adaptability, contribute effectively and make me stay ahead in my career. It is important to upgrade in skills because things keep changing almost every time. It is important because it will aid the elimination of errors in the use of digital technologies. Reskilling and upskilling in the digital age are paramount for employees, this is because as technology rapidly evolves, it reshapes job roles and industry demands. In order to remain*



*relevant, competitive and capable of navigating this dynamic landscape, employees must continuously update their skills. This is because, it not only ensures job security, but also open doors to new opportunities and career advancements. Also, without reskilling and upskilling, professionals' risk of obsolescence in the modern workplace. More so, it is important to upskill as that is the direction the world is focused on now and it brings relevance and marketability to the employee. It will also ensure understanding and knowledge of the advanced technologies. In this digital age, the ability to learn fast is one of the skills needed to remain relevant. To thrive in the digitally disrupted environment, employees should focus on acquiring the following skills: digital literacy, data analytics, adaptability, critical thinking, and cyber-security awareness. These skills combined with soft skills are essential for navigating a digital business landscape. More so, any skill worth acquiring in the digital age is inevitable. Business analysis skills, coding, computer literacy skills, data science and analytic, AI, IoT, data analysis, diversification skills, and software application use skills are needed to thrive and remain relevant.*

Sequel to the responses above, the study established that the need for reskilling and upskilling in this digital age is crucial and paramount, as it will help employees to remain relevant in this digital era.

## **DISCUSSION**

The results of this study highlight the significant awareness and adoption of disruptive innovation within the selected business organizations. All respondents acknowledged the presence of disruptive business solutions, indicating that the concept is well integrated into the local business ecosystem. However, a small portion of employees noted that their organizations have not fully embraced these innovations, which suggests variability in the adoption levels across different organizations.

Participants generally expressed concerns about job insecurity due to technology adoption, with a considerable portion anticipating the possibility of job displacement in the future. Moreover, strong consensus emerged on the eventual replacement of certain job roles by disruptive innovation. On a positive note, respondents felt relatively included in the adoption process by their organisations. The perceptions of participants regarding job security due to disruptive innovation adoption echo the psychological impact of workplace technology, as outlined by Christensen et al. (2020).

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Additionally, the anticipation of job displacement and the consensus on role replacement resonate with the implications of automation and job transformation discussed by Bughin et al. (2018) and Manyika et al. (2017). The positive sentiment of respondents feeling included in the adoption process aligns with the influence of organisational support highlighted by Lingmont and Alexiou (2020).

The sentiments expressed in Table 4 align closely with various empirical findings. The emphasis on 21<sup>st</sup> century skills and the need for reskilling and upskilling is in line with the observations of Brynjolfsson and McAfee (2014) and Autor (2015), who discussed evolving skill demands due to digital disruption. The positive perception of organisations offering skill development support concedes with the impacts of organisational support discussed by Lingmont and Alexiou (2020). The consensus among participants on the significance of continuous skill enhancement mirrors the insights from Bughin et al. (2018) and Manyika et al. (2017) about the importance of skill adaptability in the face of technological changes.

## **Implication to Research and Practice**

### **Managerial Implications**

This study has implications for various stakeholders, such as job seekers, employees, entrepreneurs, and business owners, in business domain in developing countries, especially Nigeria. This will offer crucial planning guidelines and baseline information for businesses at all levels, ensuring they remain relevant and up-to-date with disruptive innovation realities in the modern business era. Additionally, there is an opportunity to examine the psychological impacts of these changes, particularly in terms of job security and workplace anxiety, as employees navigate the demands of upskilling and reskilling.

### **Policy Implications**

For practitioners, especially business leaders and policymakers, the study emphasizes the importance of fostering a culture of continuous learning and adaptation within organizations. As disruptive innovations continue to evolve, businesses must prioritize employee development through regular training programs that focus on new technologies and the skills required to utilize them effectively. This will not only enhance employee performance but also ensure that organizations remain competitive in the rapidly changing business landscape.

For policymakers, the results suggest a need to support educational reforms that align with the demands of a digital economy. This includes integrating digital literacy and advanced technological skills into the curriculum at all levels of education, ensuring that future

employees are better prepared for the challenges and opportunities presented by disruptive innovations.

## **CONCLUSION**

This study delved into influences of adoption of disruptive innovation on employees' career in some selected business organisations in Ibadan, one of the largest cities in Nigeria. Specifically, the research hinged on four pillars – assessment of awareness of employees on disruptive innovation (technological based business solutions, encompassing both tangible products like personal computer; and services such as internet of things ) in the ecosystem as well as its adoption in workplaces; effects of disruptive innovation on employees' roles and skills; effects of digital innovation on employees' job security; and the extent of employees' need for reskilling and upskilling in the digital age.

The outcomes of the research showed that all the respondents were aware of all kind of disruptive innovations in today's business world. Also, majority of them attested to full adoption of the innovations in their various workplaces. On the effects of disruptive innovation on employees' roles and skills, it was evident from the study that although employees were required to acquire new skills in order to cope and adapt to technological shifts in the workplace, the overall effect of disruptive innovation on employee roles and skills was observed to be more positive than negative, as it gives room for improvement via training and retraining activities. In the same vein, it could be deduced from the study that disruptive innovation does not negatively affect the security of employees' jobs, as it is on the high side of improving employees' skills than adversely affecting them. Furthermore, the study also revealed that employees need to constantly reskill and upskill in order to remain relevant in their business organisations, as technology continues to evolve and transform the business ecosystem.

## **Future Research**

The study recommends that future research should focus on modelling, in detail, how employees can improve and advance in business operations, with constantly evolving technology, particularly in Nigerian business context. Also, different industries may experience the effects of disruptive innovations differently. Research could explore how various sectors—such as healthcare, finance, and manufacturing—adapt to and integrate disruptive technologies.

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