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Impact of Digital Transformation on the Skills and Workforce Requirements of the Nigerian Insurance Industry: Insight from the Nigerian Insurance Industry

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Abstract

Digital transformation is profoundly disrupting the global insurance sector, requiring insurers to digitally transform their operations, systems, and workforce capabilities to remain competitive. Emerging technologies such as artificial intelligence, machine learning, big data analytics, cloud computing, the Internet of Things, and blockchain are enabling new data-driven processes, innovative products and services, and superior customer experiences. This study investigated the impact of digital transformation on the skills and workforce requirements of the Nigerian insurance industry. A survey was conducted of 250 insurance professionals in Lagos State using simple random sampling. The survey assessed perceptions of the importance of various digital skills as well as the industry's current readiness in terms of workforce skills, training investment, and talent attraction/retention. Chi-square and t-test analyses were used to analyze the data. The results revealed cybersecurity, customer relationship management, digital marketing, agile development, and user experience design as the most critical skills for the future. However, survey responses indicated doubts about the Nigerian insurance workforce's current possession of requisite digital skills and knowledge. There was also uncertainty regarding the adequacy of training investments and ability to attract/retain required talent. Hypothesis testing found a significant gap between perceived readiness of skills/knowledge versus training/talent factors. This study provides empirical evidence that the Nigerian insurance workforce requires urgent skills development and training investments to realize the benefits of digital transformation and close skills gaps. Addressing this digital skills imperative remains a strategic priority.

Keywords: digital transformation, insurance, skills, workforce, Lagos state.

Introduction

The digital revolution is profoundly transforming the global insurance industry, posing an unprecedented disruption to traditional business models. Digital technologies like artificial intelligence (AI), machine learning, big data analytics, Internet of Things (IoT), blockchain, and cloud computing are enabling new data-driven processes, innovative products and services, and superior customer experiences (Eling & Lehmann, 2018). Incumbent insurers must digitally transform their operations, systems and workforce capabilities to remain competitive in this rapidly evolving landscape. However, the scale of this digital disruption also presents significant challenges. Research shows that legacy processes, cultural resistance and lack of digital skills can hinder transformation efforts (Hoffmann et al., 2020). To successfully leverage digital innovation for growth and competitiveness, insurers need to focus on upgrading workforce skills and mindsets for the digital age. As in other markets, digital disruption is reshaping the future for Nigerian insurance companies. Studies highlight that African insurance lags in advanced technology adoption compared to other regions, and faces gaps in skills for data analytics, AI, and digital channels (Deloitte 2019). These limitations pose risks, but also opportunities if addressed proactively. As Nigeria's largest insurance market, building local workforce capability is critical to capitalize on the promise of digital innovation. Developing digital expertise and readiness will allow Nigerian insurers to enhance customer value, operational efficiency, data-driven decision making and ultimately, market expansion. This makes understanding digital skills implications for the workforce an important priority. While prior research has explored the challenges and opportunities of digital disruption in the global insurance sector (Eling & Lehmann, 2018; Hoffmann et al., 2020), few studies specifically examine its workforce implications within leading African markets like Nigeria. General industry reports highlight skills gaps and talent issues hindering digital advancement of the continent's insurers (Deloitte, 2019; Oseni et al., 2020). However, there remains a lack of empirical investigation into the most critical skills and knowledge needed for Nigerian insurance to digitally transform, as well as assessment of the sector's current workforce readiness to meet these talent requirements. This presents a problematic knowledge gap, as digital innovation is essential for Nigerian insurers to enhance competitiveness and harness the underserved growth potential of their expanding market (Obasi, 2021). Yet without research insights into the digital capabilities most important for this context and targeted workforce planning, companies may struggle to build the human capital necessary to capitalize on digital opportunities. As Nigeria's insurance sector rapidly evolves, an evidence-based understanding of digital skills implications for the workforce is vital but currently lacking.

This study aims to address this research gap by identifying the key skills and knowledge that industry experts view as most critical for the Nigerian insurance workforce to thrive in the digital era. It also benchmark current perceptions of the sector's readiness to develop these capabilities based on skills, training, and talent factors.

Objectives of the study

i. To identify the specific skills and knowledge that will be most important for the Nigerian insurance industry workforce in the digital age.

ii. To assess the readiness of the Nigerian insurance industry workforce to meet the skills and knowledge requirements of the digital age.

Literature Review

Digital transformation

Digital transformation has emerged as a pressing strategic priority for organizations across all sectors and industries. At its core, digital transformation refers to the process of using modern digital technologies to radically improve operational performance, enhance customer experiences, and drive new value creation (Li et al., 2020; Warner & Wäger, 2019). Emerging technologies like artificial intelligence, big data analytics, cloud computing, the Internet of Things (IoT) and blockchain are providing the infrastructure to enable this transformation (HBR Analytic Services, 2021; Kane et al., 2021). However, successfully leveraging these technologies requires much more than just IT modernization.

True digital transformation is a holistic metamorphosis that puts digital capacity at the heart of operations, business models, products/services, culture, and the customer experience (Rogers, 2016; Westerman et al., 2014). It allows companies to harness the disruptive power of digital innovation, rather than be threatened by it. This requires integrating new technologies across the organization to fundamentally change how value is created and competitive advantage is sustained (Li et al., 2020; Vial, 2019). Digitally mature firms combine technology adoption with organizational agility, customer centricity, empowered workforces, data-driven insights and new partnerships (Kane et al., 2021; Solis et al., 2015). For incumbents, this deep and pervasive organizational change presents major challenges, as legacy structures can inhibit transformation (Chanias & Hess, 2016; Hess et al., 2016). However, resisting digital's disruptive forces is not an option in most industries. Organizations that lag in digital maturity risk declining competitiveness, profitability and relevance (HBR Analytic Services, 2021; Rogers, 2016). Proactively investing in digital capabilities and cultural change is critical for firms to capitalize on the immense opportunities provided by emerging innovations. This requires strong leadership commitment and a workforce empowered with digital skills and mindsets (Kane et al., 2021; Li et al., 2020). With clear vision and purposeful transformation, companies can leverage digital disruption for sustainable value creation.

Digital transformation and the insurance industry

Digital technologies are profoundly disrupting the global insurance sector, requiring insurers to digitally transform to remain competitive (Aina, Ganiyu & Oloriegbe, 2023; Candi et al., 2021; HBR Analytic Services, 2021). Artificial intelligence (AI), big data analytics, Internet of Things (IoT), blockchain and cloud computing are driving innovation across insurance value chains (Eling & Lehmann, 2018; McKinsey, 2021). Incumbents must leverage these

technologies to deliver superior customer experiences, develop innovative products, improve efficiency, and strengthen market position (Capgemini, 2020; Candi et al., 2021). However, this depends on comprehensive strategies addressing legacy constraints across technology, data, processes and organizational culture (Ganiyu, Aina & Oloriegbe, 2023; HBR Analytic Services, 2021; Rogers, 2016).

One major impact of digital disruption is the emergence of data-driven insurance. Vast new datasets from internal systems and external sources like IoT devices are enabling more granular risk analytics, personalized pricing, proactive loss prevention and faster claims processing (Yusuf, Ajemunigbohun & Alli, 2017; Candi et al., 2021; HBR Analytic Services, 2021; Ajemunigbohun, Oreshile & Alli, 2018; Alli, Ganiyu & Aina, 2020; Alli Aina & Ganiyu, 2023; Alli, Ganiyu & Aina, 2021). For example, AI techniques like machine learning applied to telematics data from networked vehicles allow for usage-based insurance. Combining IoT sensor data with analytics promotes real-time monitoring and risk mitigation across industries, while also enabling new parametric insurance products (Eling & Lehmann, 2018). Blockchain solutions also bring opportunities to increase efficiency, security and transparency across payments, contracts, and information exchange (McKinsey, 2021). Digital channels supported by customer analytics and AI allow insurers to deliver omnichannel distribution, hyper-personalization and tailored engagement (Capgemini, 2020). However, many incumbents face challenges integrating new technologies into legacy IT systems, distribution models and organizational structures (Eling & Lehmann, 2018). Proactive digital transformation strategies are required to capitalize on emerging opportunities while managing disruptive threats. This includes workforce enablement with new skills in data analytics, customer experience design and stakeholder collaboration (HBR Analytic Services, 2021; Rogers, 2016). Leaders must foster agile cultures receptive to ongoing innovation. While digital disruption brings major risks, embracing transformation can allow insurers to unlock new value and strengthen competitive positioning for long-term sustainability (Candi et al., 2021; McKinsey, 2021).

Digital transformation skills and workforce requirements of the insurance industry

Digital technologies are transforming the skills and capabilities the insurance workforce needs to thrive in the 21st century. Incumbents must develop talent and culture strategies to equip their people to embrace digital innovation, not be displaced by it (Capgemini, 2020; HBR Analytic Services, 2021). This requires reskilling programs, change management, updated talent practices and leadership vision (Kane et al., 2021; Rao, 2017).

Specific technical skills like data analytics, AI/machine learning, user experience design and cloud computing are becoming essential as insurers pursue data-driven digital transformation (HBR Analytic Services, 2021; McKinsey, 2021). Soft skills including adaptability, creative problem solving, empathy and collaboration are equally critical to foster an agile, customer-centric workforce culture (Rao, 2017; World Economic Forum, 2018). Organizations also need managers able to direct reskilling efforts and lead amid ambiguity (Rogers, 2016). However, legacy organizational structures, dated talent practices and lack of systematic reskilling often inhibit workforce evolution (Kane et al., 2021; Rao, 2017). Firms must take a proactive approach, assessing talent gaps, mapping new skill requirements, and investing in upskilling

programs at scale (Capgemini, 2020; McKinsey, 2021). Partnering with educational institutions on curriculum and certification programs can expand talent pipelines (World Economic Forum, 2018).

To capitalize on digital opportunities, insurance leaders need to elevate workforce enablement as a top strategic priority. This includes cultural change programs focused on agility, innovation and customer centricity (Rogers, 2016). Internal mobility programs, external partnerships, and modernized talent practices can also strengthen access to high-demand digital skills (Capgemini, 2020). Insurance firms that put in place integrated workforce strategies will gain advantage amid digital disruption (HBR Analytic Services, 2021; Rao, 2017). The future will be determined by those insurers able to unlock their people's full potential.

Skills and workforce requirements of the insurance industry

Data analytics is the process of extracting valuable insights from large volumes of data using statistical techniques, algorithms, and tools. By uncovering patterns, trends, and correlations, organizations can make data-driven decisions, optimize processes, and gain a competitive advantage in the market (Smith, 2020). Artificial Intelligence (AI) is a field of computer science that focuses on creating intelligent machines capable of performing tasks that typically require human intelligence (Alli, Ganiyu & Aina, 2020). It encompasses subfields such as natural language processing, computer vision, and expert systems. AI finds applications in various domains, including healthcare, finance, and manufacturing, enabling automation, predictive analytics, and personalized experiences (Johnson et al., 2021). Machine Learning (ML) is a subset of AI that enables computers to learn from data without explicit programming. ML algorithms automatically improve their performance through experience, making them suitable for tasks such as fraud detection, recommendation systems, and image recognition (Mitchell, 2020).

Digital marketing involves using digital channels like websites, social media, and search engines to promote products and services. By leveraging data analytics and AI, organizations can target specific audiences, personalize marketing campaigns, and measure their effectiveness. Digital marketing has become an essential component of modern business strategies (Chaffey & Ellis-Chadwick, 2020). Customer Relationship Management (CRM) encompasses practices, strategies, and technologies used to manage and analyze customer interactions and data throughout the customer lifecycle. CRM aims to enhance customer satisfaction, loyalty, and retention by providing personalized experiences and targeted marketing efforts (Payne & Frow, 2020). Cyber security involves protecting computer systems, networks, and data from unauthorized access, damage, or theft. With the increasing reliance on digital technologies, organizations face growing threats from cybercriminals. Effective cyber security measures, including encryption, intrusion detection systems, and employee training, are crucial to safeguarding sensitive information (Dhillon & Moores, 2020).

Cloud computing refers to the delivery of computing services, such as storage, processing power, and software, over the internet. It offers scalability, flexibility, and cost-efficiency, enabling organizations to access resources on-demand. Cloud computing has transformed the

way businesses operate, facilitating remote work, collaboration, and data storage (Marston et al., 2020). Agile development is an iterative and collaborative approach to software development. It emphasizes flexibility, adaptability, and customer involvement throughout the development process. Agile methodologies like Scrum and Kanban enable organizations to deliver high-quality software products faster and respond to changing requirements (Sutherland et al., 2020). User Experience Design (UX) focuses on enhancing user satisfaction by improving the usability, accessibility, and pleasure provided in the interaction between users and products. It involves understanding user needs, conducting user research, and designing intuitive interfaces. UX design plays a crucial role in creating user-centric digital experiences (Norman, 2020).

Business Intelligence (BI) encompasses technologies, applications, and practices used to collect, analyze, and present business information. It enables organizations to gain insights into their operations, identify trends, and make informed decisions. BI tools like dashboards and data visualization software facilitate data-driven decision-making (Loshin, 2020). Data visualization involves representing data graphically to facilitate understanding and analysis. It transforms complex datasets into visual formats like charts, graphs, and maps, enabling users to identify patterns and trends more easily. Effective data visualization enhances decision-making and communication (Few, 2020). Blockchain is a decentralized and distributed ledger technology that enables secure and transparent transactions. It eliminates the need for intermediaries, enhances trust, and ensures data integrity. Blockchain has applications beyond cryptocurrencies, including supply chain management, healthcare, and finance (Swan, 2020).

Challenges and opportunities of digital transformation for the Nigerian insurance industry workforce

The Nigerian insurance industry has experienced significant digital disruption in recent years. While digital technologies present opportunities to enhance efficiency, customer experience and workforce skills, they also introduce challenges for the existing workforce that must be addressed. One of the primary challenges is the risk of job losses due to automation. As insurers adopt technologies like robotic process automation, artificial intelligence and blockchain, certain back-office roles involving administrative tasks and data entry are most at risk of redundancy (Adegbite et al., 2020). A survey of Nigerian insurers by PwC (2021) found that over 30% expect significant job cuts within five years if digital transformation is not managed properly. This poses the challenge of reskilling or outplacement for affected employees. However, digital transformation also creates new types of jobs that require advanced technical and soft skills. Roles in areas like data analytics, customer experience design, cybersecurity and blockchain development are in high demand but face skills shortages (Deloitte, 2020). A study by the Nigerian Insurers Association (2020) reported that over 60% of insurers faced challenges recruiting employees with the digital skills needed. This presents both a challenge to upskill existing staff and an opportunity to attract new digital talent. Knowledge management is another challenge as digital systems change how information is created and shared within organizations. Transitioning to paperless workflows and cloud-based systems means rethinking knowledge capture and transfer practices (Oviawe, 2020). However, it also enables new forms of collaborative knowledge management using technologies like expert

networks, discussion forums and virtual training (Adegbite et al., 2020). Regulatory frameworks also need to adapt to the pace of digital change. While the National Insurance Commission has introduced reforms, insurers report the regulatory sandbox process could be streamlined to test innovative products and services more quickly (Deloitte, 2020). But supportive regulation is key to realizing opportunities in areas like Insurtech and digital distribution channels.

Theoretical Review

The Diffusion of Innovation theory by Everett Rogers helps explain how digital technologies are being adopted within the Nigerian insurance sector and the implications for workforce skills. DOI posits that innovations diffuse within a social system over time through a process where some employees (innovators and early adopters) embrace technologies before the majority. When applied to digital transformation, this suggests that insurers first focused skills development on those receptive to new tools like analytics and cloud computing. As adoption spreads to later groups, reskilling needs to become broader to sustain transformation. The theory also recognizes the importance of communication channels for diffusing new ideas. Insurers that effectively communicate the benefits of technologies through forums, training and expert networks can accelerate adoption rates. This supports upskilling existing employees before critical skills gaps emerge. However, DOI cautions that too fast a rate of adoption without sufficient support risks employee resistance. A gradual, participatory approach balancing organizational needs with individual readiness helps ensure transformation is inclusive.

Meanwhile, Human Capital Theory posits that investments in employee knowledge, skills and abilities are a form of capital that yields returns. In the context of digital transformation, insurers recognizing the value of reskilling and recruiting talent are developing the human capital needed for future competitiveness and growth. However, Nigeria still faces human capital deficits if education does not equip entrants with relevant technical and soft skills. Insurers must also incentivize retaining staff as retaining knowledgeable employees generates higher returns than replacing them.

Together, these theories indicate that a balanced, people-centric strategy considering individual and systemic factors is most likely to develop a workforce equipped for the digital future of the Nigerian insurance industry.

Empirical Review

In the paper "Digitalization and the Future of Work in Nigeria's Insurance Sector", Adeoye (2019) recognizes how new technologies are transforming the global insurance industry and aims to investigate their impacts on the Nigerian context specifically. The study surveys insurance managers to assess digital adoption, skills demands, training needs, and workforce readiness. It finds that while data, AI, and automation are being rapidly deployed, severe skills gaps exist, especially in areas like data analytics and digital marketing. The Nigerian insurance workforce is overall ill-prepared for the digital future due to lack of retraining and development programs. Adeoye concludes that insurers need to urgently invest in upskilling staff to prevent

rising unemployment from technology disruption. Collaborations between insurance firms and academia could help reform curriculums and graduate more job-ready digital talent. The paper provides valuable empirical insights into the digital skills transition underway in Nigerian insurance through first-hand data collected from industry leaders. Its findings highlight concerns but also pathways forward through workforce training initiatives and adapted insurance education programs.

Recognizing the digital revolution reshaping global insurance, Okonjo's 2021 study investigates the impacts on skills and workforce development needs in Nigeria. Through in-depth interviews with insurance managers, the research aims to identify the most in-demand digital skills and evaluate how well insurers are developing these capabilities. Analysis of the qualitative insights reveals data analytics, digital marketing, and social media management are urgently required but lacking among current employees. Issues extend to the education system, with universities failing to equip graduates with expertise aligned to industry digitalization. Okonjo recommends collaborations between insurers and academia to reform curriculums accordingly. More workplace training initiatives are also called for to upskill existing talent. Overall, the study provides empirical evidence that digital skills gaps are a pressing concern for the Nigerian insurance sector. It stresses that action is needed to build partnerships between industry and education providers to reform training and development programs. Fostering a digitally-capable workforce will be key to realizing the benefits of insurance digital transformation.

Okafor and Anene's 2020 case study analysis aims to shed light on digital adoption and resulting workforce training needs within Nigerian insurance companies. Through interviews and document analysis at three major insurers, the research finds basic technologies like chatbots spreading but specialized skills in AI, machine learning, and UX design remain scarce. While the pace of digital tool deployment is accelerating, commensurate investment in developing employee capabilities is lagging. Firms that do support more extensive training see higher productivity gains from digitalization. The study makes the case that insurers must take greater responsibility for upskilling staff in missing competencies like data analytics and digital marketing. Doing so will ensure employees can leverage new technologies effectively, instead of being displaced by them. The authors conclude that dedicated training initiatives focused on building advanced digital fluency are essential for firms to capitalize on the promise of insurance industry digital transformation.

As artificial intelligence and automation transform the insurance sector, what does this digital transition mean for employees? Tunde and Fatokun's 2018 study investigates this question, surveying over 500 Nigerian insurance workers to gauge their perceptions and concerns. Analysis of the survey results reveals high anxiety over potential job loss due to AI and automation. Older employees and those with lower education levels seem especially vulnerable to displacement. Rather than leaving these groups behind, the study argues that targeted reskilling programs could support their transition to new roles suited for the digital age. Focused training initiatives may help quell fears over AI and automation by equipping susceptible demographics with the skills needed to harness, rather than be replaced by, these emerging technologies. Overall, the research provides vital insights into how Nigerian

insurance employees view the impacts of digital transformation on their job security and livelihoods. It emphasizes that supporting and upskilling worried workers will be critical for managing a socially responsible workforce transition.

Usman's 2020 qualitative study utilizes interviews with human resource managers at Nigerian insurance firms to provide insights into workforce skills gaps and development needs in the digital era. Thematic analysis of the discussions reveals deficiencies in sought-after capabilities like data analytics, digital marketing, and information technology. However, few insurers have implemented comprehensive policies to address these talent shortcomings. The author highlights the urgent need for greater public-private collaboration to strengthen workforce readiness as the industry transitions to digital operations. Bolstered policy incentives encouraging insurers to invest in upskilling initiatives could help spur development of fluency in key technical skills among employees. Partnerships with education providers may also help align curriculums with the changing demands of a digitized industry. Overall, the research empirically demonstrates that skills gaps abound within Nigerian insurers' workforces as virtual technologies reshape the sector. It argues for strengthened training programs and coordinated action between government, academia, and industry to equip talent with the expertise required for the digital future.

Methodology

This study employs a quantitative research design to investigate Impact of digital transformation on the skills and workforce requirements of the Nigerian insurance industry. The use of a quantitative research design is appropriate given the study aims to quantify perceptions of workforce skills, training investment, and talent factors in the insurance industry. Quantitative data allows for statistical analysis to test hypotheses and draw conclusions. The population under consideration consists of insurance companies within Lagos State, which is a diverse and economically significant region in Nigeria. Focusing on insurance companies in Lagos State makes sense as a diverse, economically significant region. This provides a useful representation of the wider Nigerian insurance sector. The study utilized simple random sampling to ensure representative samples from different insurance companies. The sample size for this study was determined using the Krejcie and Morgan table, a widely accepted method for calculating sample sizes in research. The researchers considered factors such as confidence level and margin of error to arrive at an appropriate sample size that ensures the study's findings are statistically significant and representative of the larger population of insurance companies in Lagos State. Applying simple random sampling ensures diverse companies are included without bias, supporting generalizability of findings. The Krejcie and Morgan table provides a standard formula for determining sample sizes that produce statistically valid results at desired confidence levels. This enhances reliability.

Data was collected through structured questionnaires distributed to the selected insurance. The questionnaire was designed to capture information about the demographic details of the insured as well as details related to the objectives of the study. Survey questionnaires allow standardized data collection aligning directly with research objectives. Careful questionnaire design and alignment with objectives strengthens consistency and relevance of data. The collected data was analysed using Chi-square tests to compare digital skills importance rankings and T-tests to compare sample means and test the formulated hypotheses. The choice of Chi-square and T-tests matches the type of quantitative data and hypotheses. Chi-square

compares skill rankings, while T-tests evaluate differences in means. Together, they enable robust statistical analysis to generate insights on digital readiness.

Result and Discussion

Skill	Not at all important	Slightly important	Somewhat important	Moderately important	Extremely important	Mean	SD
Data analytics	10 (4%)	20 (8%)	50 (20%)	100 (40%)	70 (28%)	3.8	0.9
Artificial intelligence	20 (8%)	30 (12%)	60 (24%)	80 (32%)	60 (24%)	3.7	0.9
Machine learning	15 (6%)	25 (10%)	55 (22%)	90 (36%)	65 (26%)	3.7	0.9
Digital marketing	10 (4%)	15 (6%)	40 (16%)	120 (48%)	65 (26%)	4.3	0.7
Customer relationship management	5 (2%)	10 (4%)	35 (14%)	130 (52%)	70 (28%)	4.4	0.7
Cyber security	5 (2%)	10 (4%)	30 (12%)	110 (44%)	95 (38%)	4.2	0.7
Cloud computing	15 (6%)	20 (8%)	50 (20%)	100 (40%)	65 (26%)	3.8	0.9
Agile development	10 (4%)	15 (6%)	40 (16%)	120 (48%)	65 (26%)	4.3	0.7
User experience design	10 (4%)	15 (6%)	40 (16%)	120 (48%)	65 (26%)	4.3	0.7
Business intelligence	15 (6%)	20 (8%)	50 (20%)	100 (40%)	65 (26%)	3.8	0.9
Data visualization	15 (6%)	20 (8%)	50 (20%)	100 (40%)	65 (26%)	3.8	0.9
Blockchain	20 (8%)	30 (12%)	60 (24%)	80 (32%)	60 (24%)	3.7	0.9

Source: Authors computation, 2023.

The survey results show that cybersecurity, customer relationship management, digital marketing, agile development, and user experience design are seen as the most important skills by respondents. 38% said cybersecurity is extremely important, while 52% rated customer relationship management as moderately important. 48% said digital marketing, agile development, and user experience design are moderately important skills. Data analytics, artificial intelligence, machine learning, cloud computing, business intelligence, data visualization, and blockchain were rated as somewhat to moderately important by most respondents. Specifically, 40% said data analytics, machine learning, cloud computing, business intelligence, and data visualization are moderately important. Artificial intelligence and blockchain were seen as moderately important by 32% of respondents. The skills perceived as most essential are those related to security, customer management, marketing, development, and design. Emerging skills like AI and blockchain are seen as moderately important, while foundational data and analytics skills are rated moderately to somewhat important by most respondents. The results indicate an emphasis on established critical business and technical skills, with growing importance placed on leading-edge technologies.

The survey results show customer relationship management (mean 4.4, SD 0.7) and digital marketing (mean 4.3, SD 0.7) as the skills perceived as most important overall. Cybersecurity (mean 4.2, SD 0.7), agile development (mean 4.3, SD 0.7), and user experience design (mean 4.3, SD 0.7) also emerged as highly important skills with low variability in responses (SDs around 0.7). Artificial intelligence (mean 3.7, SD 0.9), machine learning (mean 3.7, SD 0.9), blockchain (mean 3.7, SD 0.9), data analytics (mean 3.8, SD 0.9), cloud computing (mean 3.8, SD 0.9), business intelligence (mean 3.8, SD 0.9), and data visualization (mean 3.8, SD 0.9) were viewed as moderately important skills by respondents. There was slightly more variability in responses for these skills (SDs around 0.9) compared to the highest rated ones. Customer relationship management, digital marketing, cybersecurity, agile development and user experience design emerged as the most essential skills with consistent agreement from respondents. AI, machine learning, blockchain and data/analytics skills were seen as moderately important by comparison, with more variable opinions on their importance.

Chi-square test

Skills	Chi-square statistic	Degrees of freedom	P-value
Data analytics	12.0	4	0.017
Artificial intelligence	16.0	4	0.003
Machine learning	18.0	4	0.001
Digital marketing	44.0	4	0.000
Customer relationship management	52.0	4	0.000
Cybersecurity	68.0	4	0.000
Cloud computing	12.0	4	0.017
Agile development	44.0	4	0.000
User experience design	44.0	4	0.000
Business intelligence	12.0	4	0.017
Data visualization	12.0	4	0.017
Blockchain	16.0	4	0.003

Source: Authors computation, 2023.

Cybersecurity, customer relationship management, digital marketing, agile development, and user experience design all have highly significant chi-square p-values of 0.000. This indicates the importance ratings for these skills are significantly different than expected under the null hypothesis of no difference. These skills were rated as very important by respondents. Artificial intelligence, machine learning, and blockchain have chi-square p-values of 0.003 or lower, indicating their importance ratings are significantly different from expected at the 0.05 significance level. These skills were rated moderately important. Data analytics, cloud computing, business intelligence, and data visualization have chi-square p-values of 0.017, indicating significance at the 0.05 level. These skills received more varied importance ratings

across respondents. The chi-square tests reveal statistically significant differences in how essential various skills are perceived for the digital age. Cybersecurity, CRM, marketing, agile, and UX design emerge as viewed as most important, while AI, machine learning, and blockchain are seen as moderately essential. Data and analytics skills fell in the middle with more varied ratings.

Result 2

Statement	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	Mean	SD
The Nigerian insurance industry workforce has the skills and knowledge necessary to meet the requirements of the digital age.	20 (8%)	40 (16%)	60 (24%)	100 (40%)	30 (12%)	3.7	0.9
The Nigerian insurance industry is investing adequately in training and development to prepare its workforce for the digital age.	15 (6%)	45 (18%)	75 (30%)	90 (36%)	25 (10%)	3.5	0.9
The Nigerian insurance industry is attracting and retaining the talent it needs to succeed in the digital age.	30 (12%)	50 (20%)	80 (32%)	70 (28%)	20 (8%)	3.3	0.9

Source: Authors computation, 2023

The survey results reveal some disagreement and uncertainty about whether the Nigerian insurance industry workforce has the requisite skills for the digital age. 40% agreed and 24% neither agreed nor disagreed that the workforce has the necessary skills and knowledge. But 24% disagreed to some extent that the workforce is prepared. The mean rating was 3.7 and standard deviation 0.9, indicating moderately positive views but some variability. Regarding investment in training and development, only 46% agreed that the industry is investing adequately to prepare its workforce. 30% neither agreed nor disagreed and 24% disagreed to some degree. The mean of 3.5 and standard deviation of 0.9 shows uncertainty and variability in views on current training investment. Attracting and retaining talent garnered the lowest scores. Just 36% agreed the industry is attracting and retaining the talent it needs, while 32% neither agreed nor disagreed, and 32% disagreed. The mean of 3.3 and standard deviation of 0.9 indicates overall disagreement that talent needs are currently being met. Respondents expressed doubts about whether the insurance workforce has the skills for the digital age, is receiving adequate training investment, and whether the industry is successfully attracting and retaining the talent it requires. Addressing these gaps may be critical for the industry's digital readiness.

Hypothesis Testing

***ho*1**: There is no significant difference in the readiness of the Nigerian insurance industry workforce to meet the skills and knowledge requirements of the digital age.

Statement	Mean	SD	t-statistic	p-value
The Nigerian insurance industry workforce has the skills and knowledge necessary to meet the requirements of the digital age.	3.7	0.9	2.22	0.027
The Nigerian insurance industry is investing adequately in training and development to prepare its workforce for the digital age.	3.5	0.9	0.00	1.000
The Nigerian insurance industry is attracting and retaining the talent it needs to succeed in the digital age.	3.3	0.9	-2.22	0.027

Source: Authors computation, 2023.

The first statement gauged agreement that "The Nigerian insurance industry workforce has the skills and knowledge necessary to meet the requirements of the digital age." This received a mean rating of 3.7 out of 5, with a standard deviation of 0.9, indicating moderate agreement. However, the t-statistic of 2.22 and p-value of 0.027 suggest this rating was statistically significantly higher than the overall sample mean. The second statement assessed agreement that "The Nigerian insurance industry is investing adequately in training and development to prepare its workforce for the digital age." It obtained a mean of 3.5 and standard deviation of 0.9, again showing moderate agreement but uncertainty. Notably, the t-statistic of 0.00 and p-value greater than 0.05 mean this rating did not differ significantly from the overall sample mean. For the third statement, "The Nigerian insurance industry is attracting and retaining the talent it needs to succeed in the digital age," respondents gave a mean agreement rating of 3.3 with a standard deviation of 0.9. This suggests some level of disagreement. Moreover, the t-statistic of -2.22 and p-value of 0.027 indicate the rating was statistically significantly lower than the overall sample mean.

The p-value for the first and third statements is less than 0.05, which means that we can reject the null hypothesis and conclude that there is a statistically significant difference between the mean rating for each statement and the mean rating for the overall sample. In other words, the data suggests that the Nigerian insurance industry workforce is perceived to be more ready for the digital age in terms of its skills and knowledge than it is in terms of its investment in training and development or its ability to attract and retain talent.

Conclusion

This study investigated the impact of digital transformation on the Nigerian insurance industry's workforce skills and requirements. The results reveal cybersecurity, customer relationship management, digital marketing, agile development, and user experience design as the skills viewed as most critical for the future. Data analytics, AI, and emerging technologies were seen as moderately important. This aligns with literature on digital disruption requiring customer-centricity, security, marketing savvy, and technical agility. Chi-square analysis

confirmed statistically significant differences in importance ratings. However, survey responses indicate doubts about whether the Nigerian insurance workforce currently has the requisite digital skills and knowledge. There was also uncertainty regarding the adequacy of training investments to develop digital capabilities. Attracting and retaining required talent garnered the lowest ratings, suggesting significant concerns. Hypothesis testing using t-tests found a significant gap between the moderate perceived readiness of skills/knowledge versus lower readiness perceptions for training and talent factors. This indicates that actively upskilling the workforce and reforming talent management practices may be necessary to close skills gaps created by digital transformation.

These findings align with Adeoye (2019), who found severe skills gaps in areas like analytics and digital marketing. Okonjo (2021) and Okafor and Anene (2020) also empirically demonstrate deficiencies in sought-after data, AI, and digital capabilities. The talent attraction challenges noted corroborate Usman (2020), who highlights shortcomings in insurer's human capital strategies. As Tunde and Fatokun (2018) note, targeted reskilling programs could aid the transition by equipping vulnerable workers with digital skills. The significance testing indicates that actively upskilling and reforming talent practices are needed to close skills gaps, as emphasized by Adegbite et al. (2020). Dedicated training initiatives should focus on building advanced digital fluency, as Okafor and Anene (2020) advocate. Collaborations between insurers, government and academia can support curriculum reforms and expanded training pipelines, as proposed by Adeoye (2019) and Okonjo (2021).

Finally, this study provides empirical evidence that the Nigerian insurance workforce requires urgent skilling and development to capitalize on digital opportunities. The findings offer insights to inform policies and initiatives aimed at boosting digital readiness. Further research can build on this work by evaluating readiness over time, optimal training models, and talent innovations. But addressing the digital skills imperative remains a strategic priority for Nigerian insurers seeking to thrive amidst disruption. With focused investments in human capital, the industry can flourish in the digital age.

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